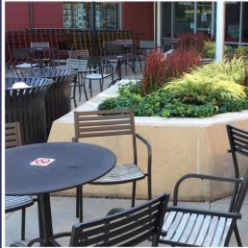


Houghton Everest Neighborhood Center 6th Street Corridor

Transportation Commission
December 6, 2016



Overview



An integrated land use/transportation study



Outcomes

Inclusive Public Outreach

6th Street Corridor Plan

Recommendations for Zoning and
Comprehensive Plan Amendments for the
Houghton Everest Neighborhood Center

Corridor Study Overview

1

WHAT WE
HEARD

2

WHAT WE
LEARNED

3

IDEAS FOR
WHAT WE
CAN DO

1 WHAT WE HEARD

CONGESTION
during peak times

PARKING

OPERATIONS
*to safely connect
the community*



MOBILITY
*moving people
efficiently*

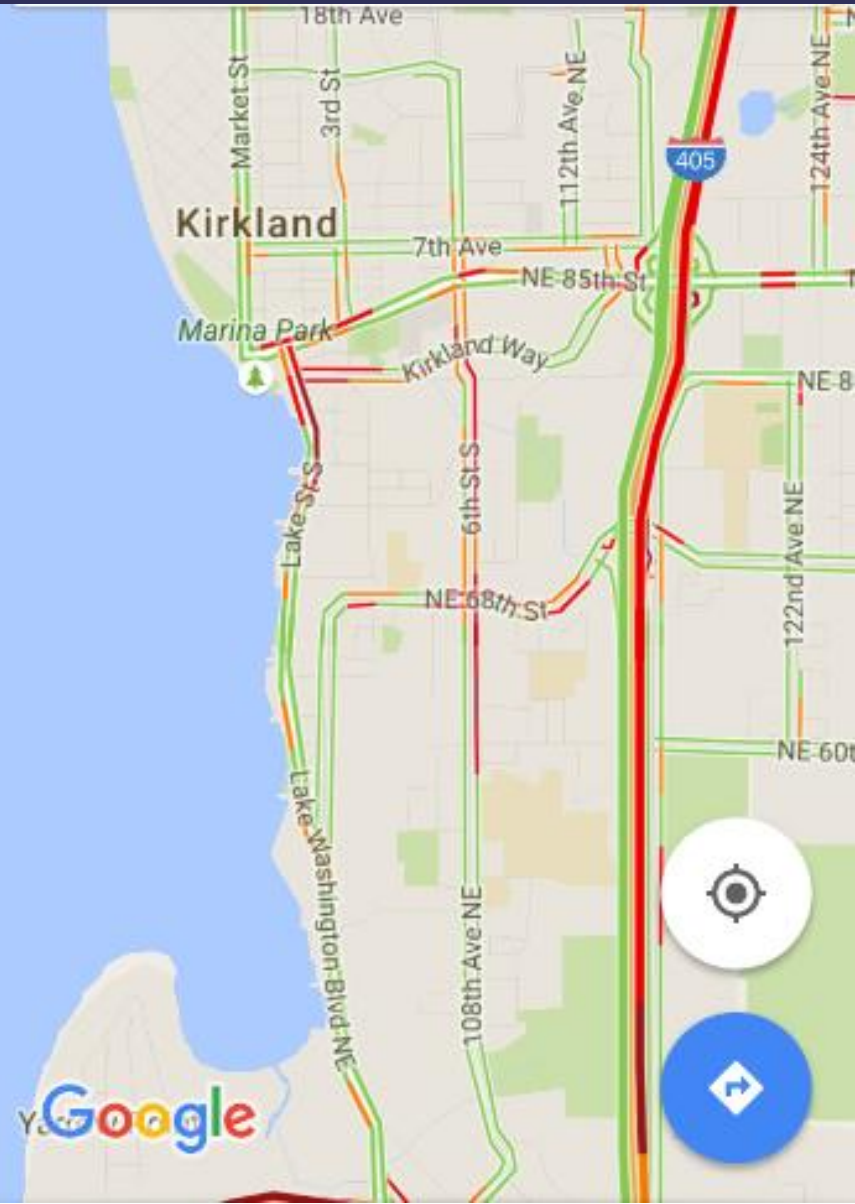
Walkable
Vibrant
Livable
Connected
Green

Peak Congestion

TRAFFIC CONGESTION

- increased diversion traffic
- symptom of regional system
- will continue to grow as a result of growth/economic prosperity
- impacts access to neighborhoods

All travel modes are growing



Operations to safely connect the community



Vehicle circulation and access at the neighborhood center



- Off-peak (school peak) circulation
- Safe and walkable connections for students walking to school
- Better and safer connections for pedestrians, bikes, to local destinations like schools

Conflicts between peds/cars/bikes

- at intersections
- at driveways
- at crosswalks



Mobility moving people efficiently



Transit effectiveness is limited by:

- Park-and-ride full
- Buses stuck in congestion
- Bus stop spacing
- Service connections

Buses stop in-lane



Bike connections
inconvenient,
uncomfortable, and
not connected



Parking

South Kirkland Park-and-Ride

- fills early
- parking in neighborhoods
- may not be 100% transit based



Retail employees
parking in
neighborhoods

Survey Results

- Interest in pedestrian and bike enhancements
- Desire to fix congestion
 - Fix regional facilities
 - Move transit
 - Improve access

Values

The 6th Street/108th Corridor must:

1. move people (not just vehicles) efficiently throughout the entire corridor (not just 6th/108th)
2. connect community and neighborhood destinations, safely
3. be designed to reduce congestion
4. provide capacity into the future to help the city achieve future growth objectives

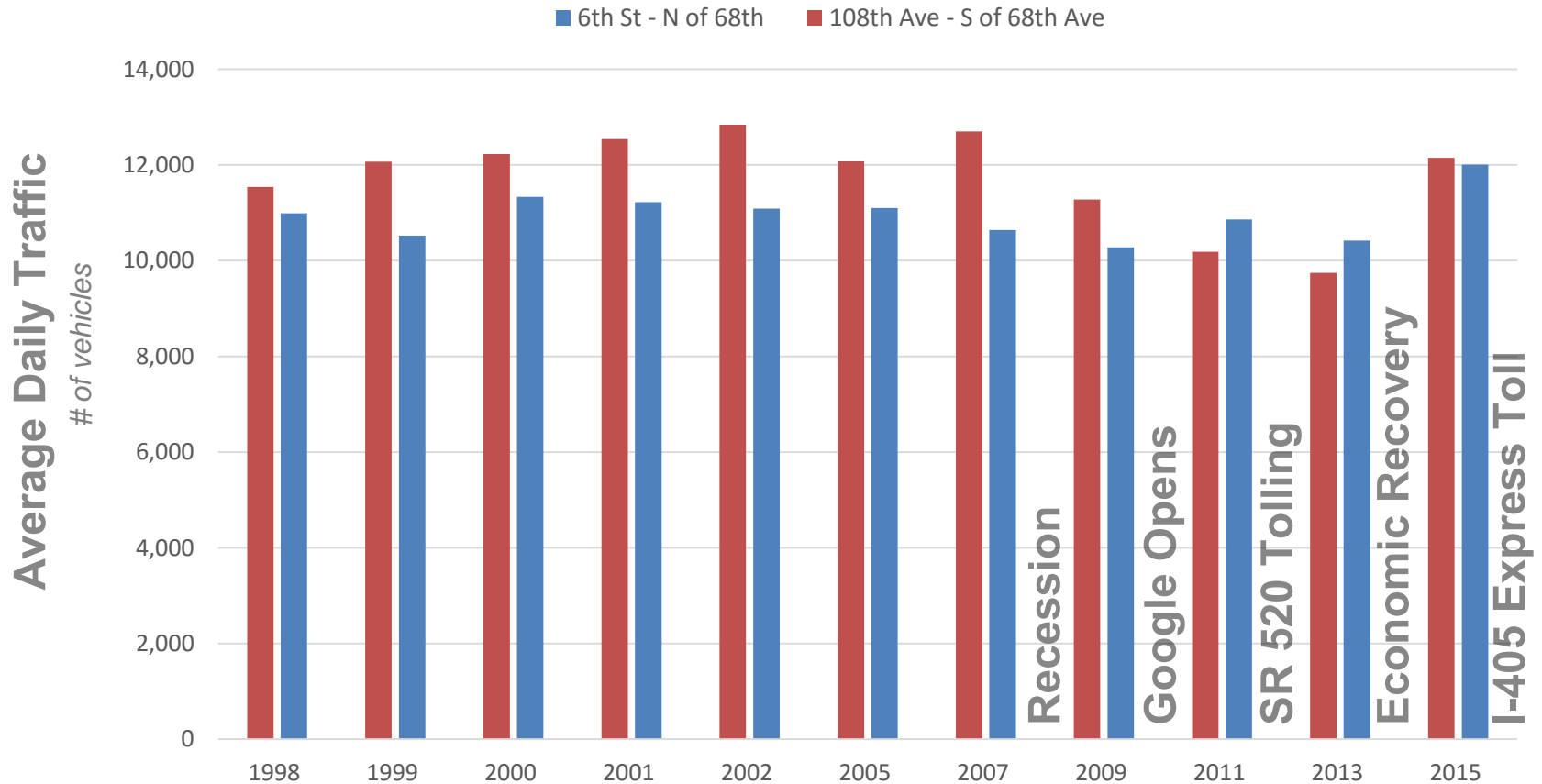
2 WHAT WE LEARNED

- Congestion during peak times
- Operations to safely connect the community
- Mobility – moving people efficiently
- Parking
- Data Sources:



Trends – Daily Volumes

Average Daily Traffic Volumes by Year



Daily Traffic Volumes

LAKE WA
boulevard

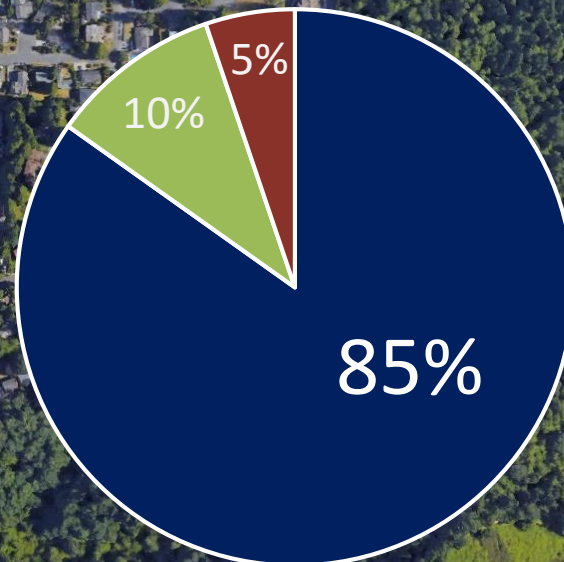
22,190

108th
avenue

11,561

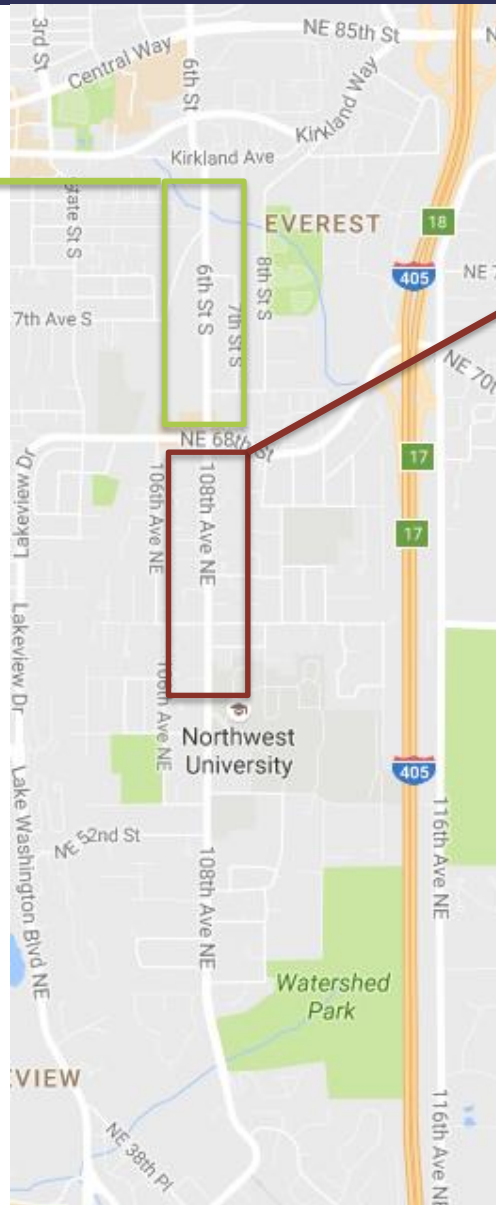
I-405

188,800



Average Daily Traffic Volumes
on Parallel Corridors

PM Queuing



Operations to Safely Connect the Community

INTERSECTION SPACING
and driveway spacing at the
center are poorly organized

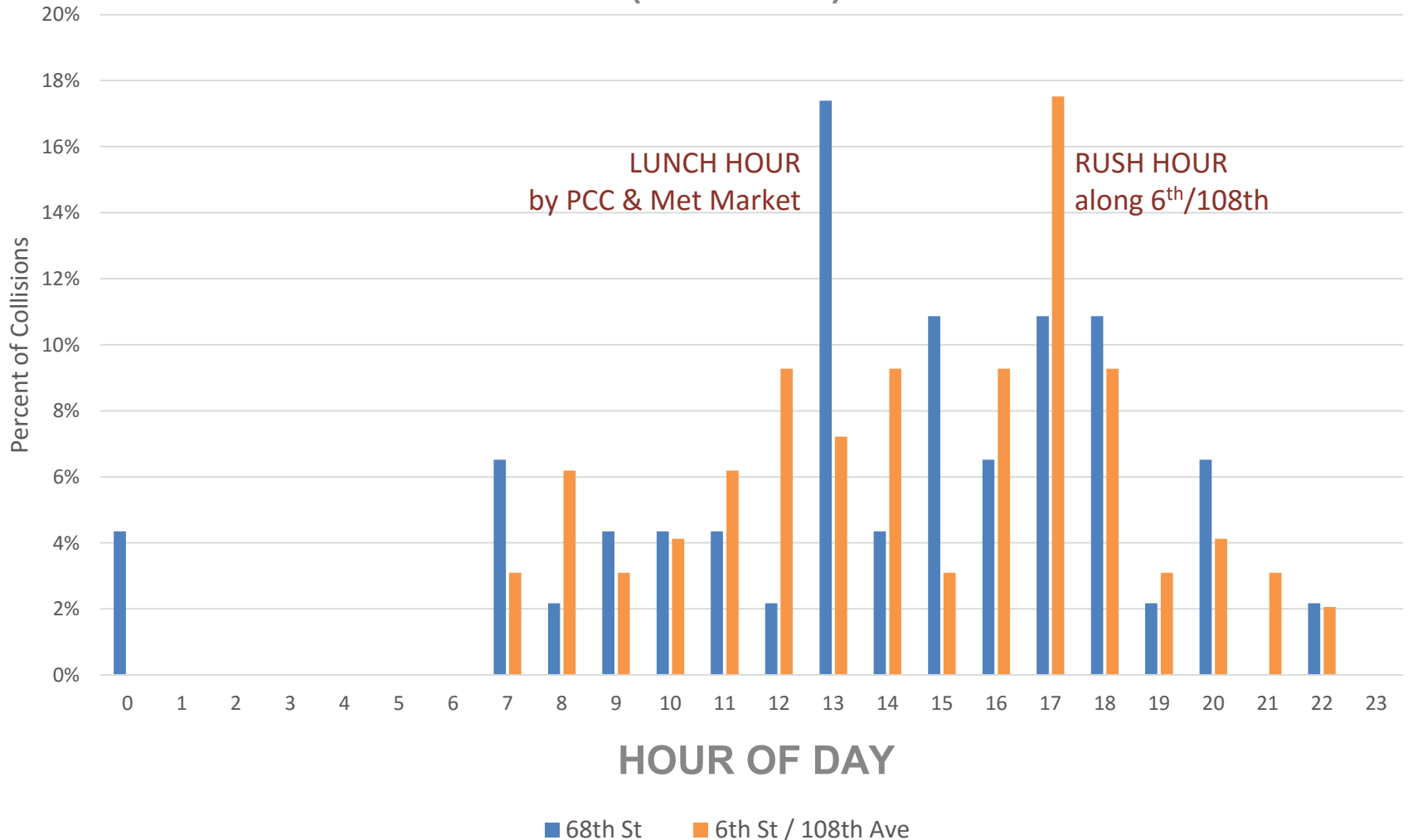
- Too many driveways
- Too closely together
- Lots of potential conflict points can create collisions

COLLISIONS

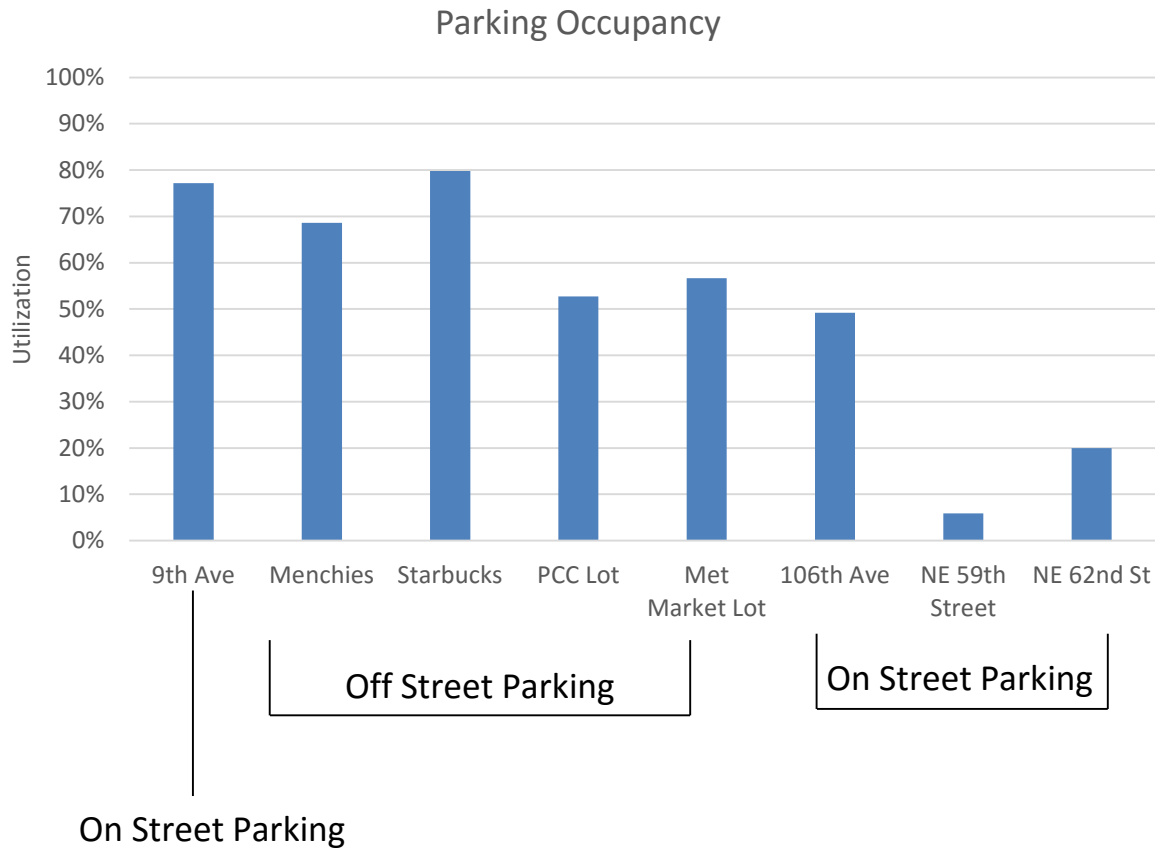
- Higher rate of ped and bike than City average
- Higher on 68th Ave

Safety Data – by Hour of Day

Collisions by Time of Day
(2012-2015)

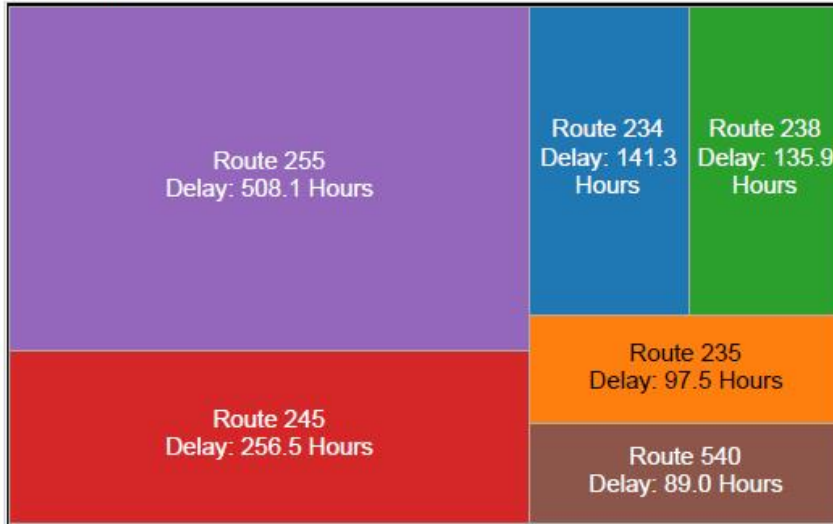


PM Peak Parking Occupancy

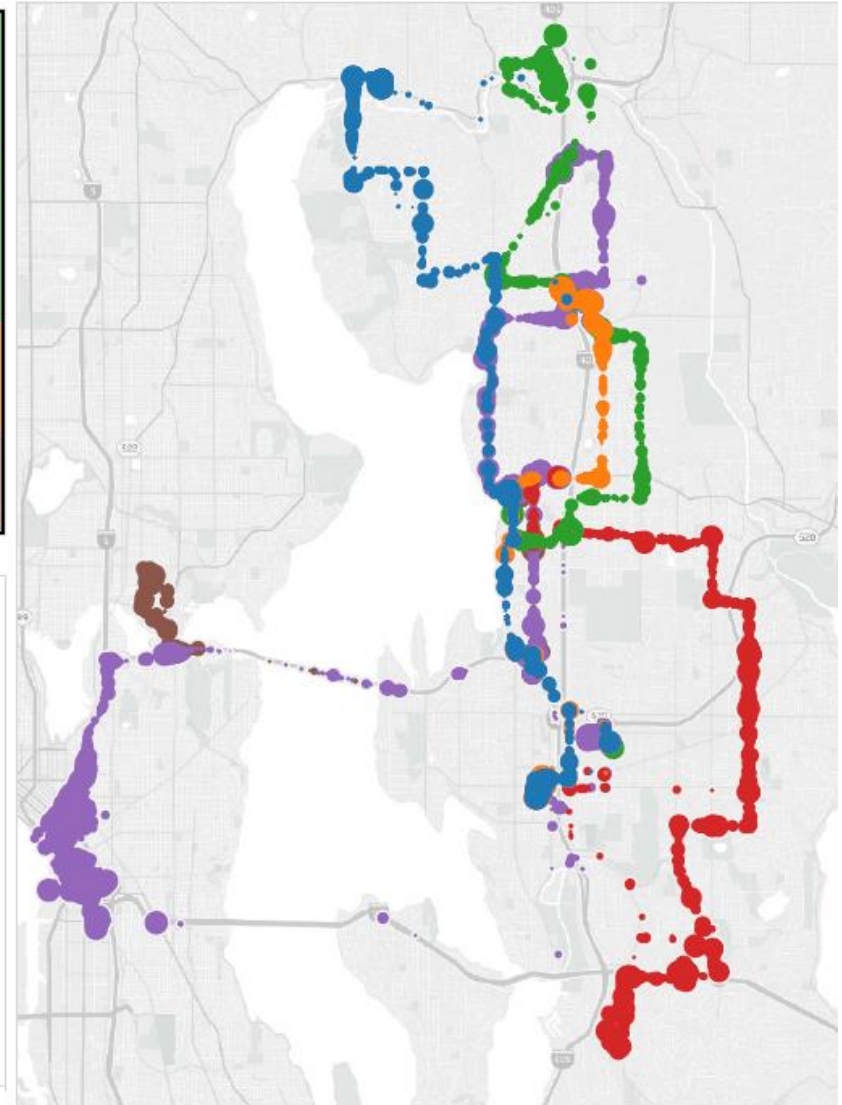


Transit Delay (2 Weeks March 2016)

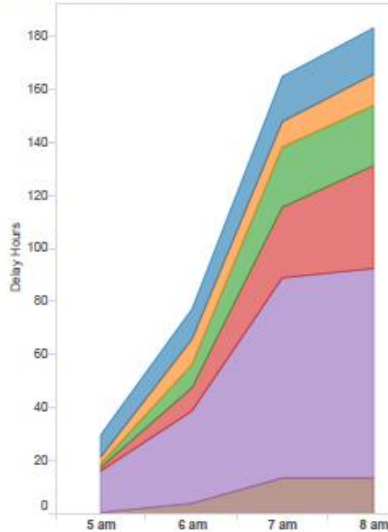
Total Delay



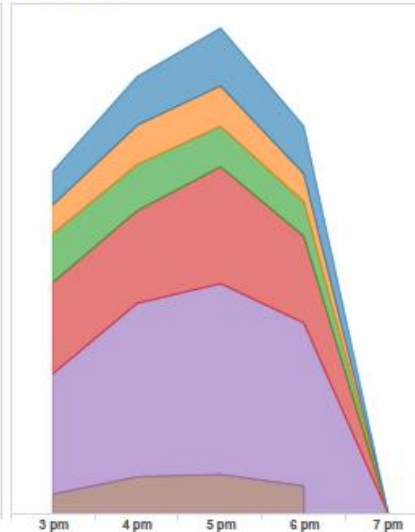
Map



Delay by Hour AM

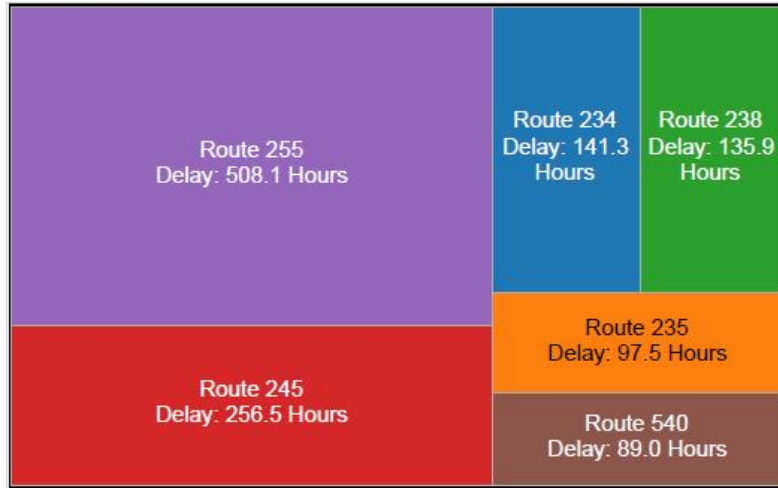


Delay by Hour PM

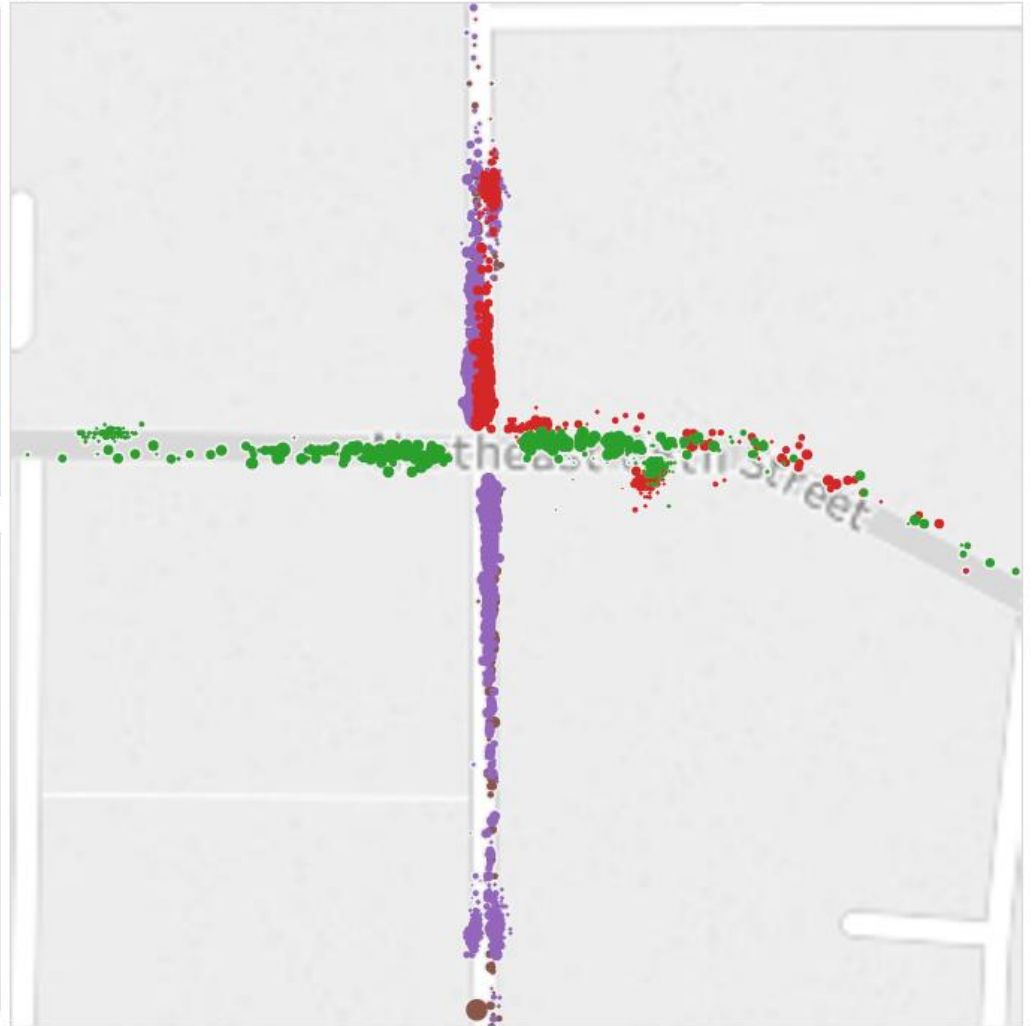


68th St / 108th Ave Intersection – Transit Delay

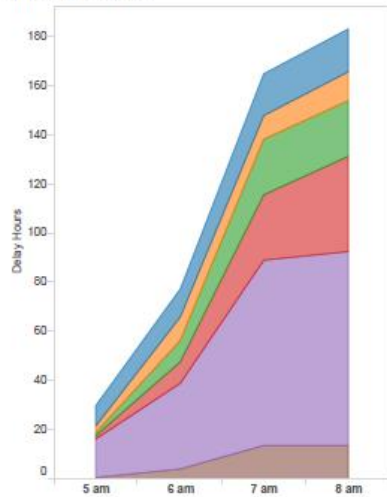
Total Delay



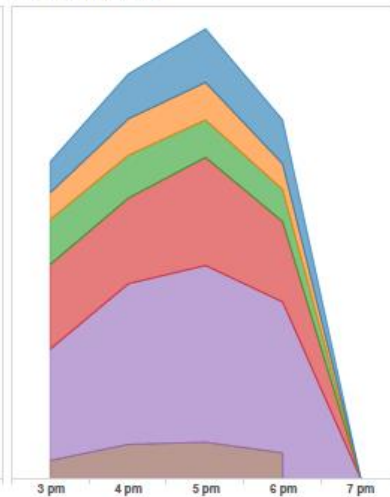
Map



Delay by Hour AM

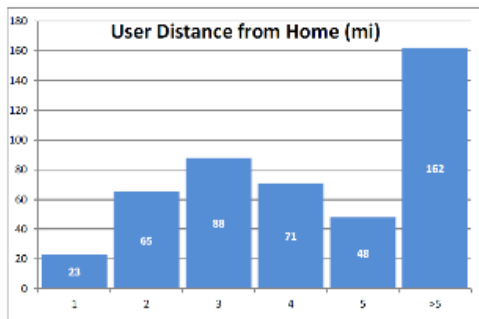


Delay by Hour PM



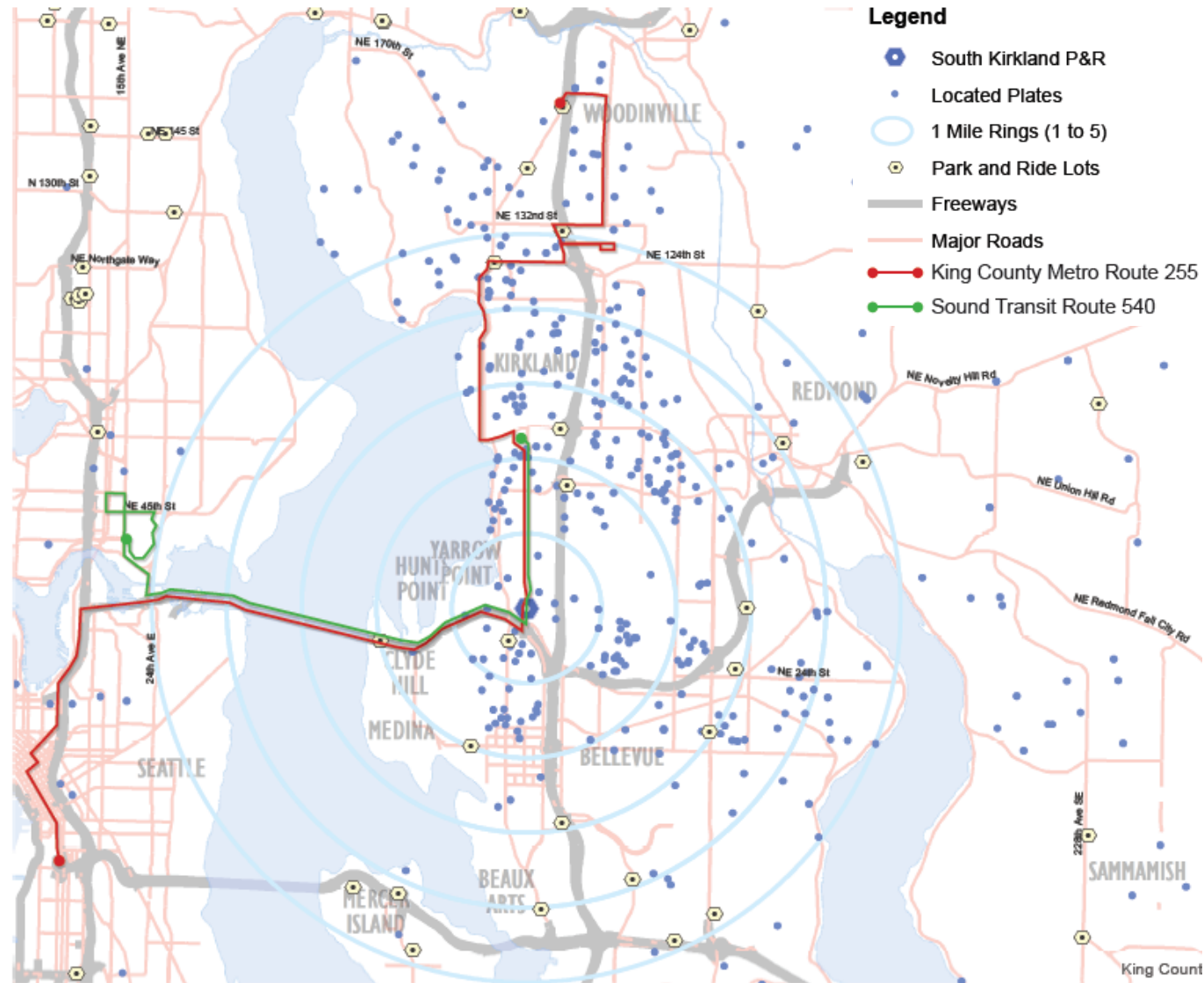
S Kirkland P&R - Current Draw Area

S. Kirkland Park & Ride Origin Map



Statistics	
# Located Plates	457
# Plates Recorded	741
# Stalls	833
Q1 2015 Utilization	89.0%
% of Stalls Located	54.9%
Minimum (mi)	0.27
Maximum (mi)	25.61
Median (mi)	3.75
Mean (mi)	4.62
Std. Dev.	3.56

Distance from P&R	% of Located Plates
0-1 mi	5%
1-2 mi	14%
2-3 mi	19%
3-4 mi	16%
4-5 mi	11%
5+ mi	35%



What Will Change

GROWTH (20 YEARS)

Kirkland:

22,000 more jobs

13,000 more residents

(15% increase)

Regional:

57% more jobs

35% more residents

POTENTIAL TRANSIT INVESTMENTS

RapidRide
on 6th/108th by 2025

Put BRT
on I-405 by 2024

Put light rail access
within City limits by 2041

INCREASE SIGNALS

5 → 8

along 2 mile corridor

3

WHAT WE CAN DO

ACCESS

MANAGEMENT

*Close Driveways,
Medians, Modify
Access*

TRANSIT &

TRANSIT

SIGNAL

PRIORITY

*at 68th and
Kirkland Way*

GREENWAYS

*safely connect
the community
and connect the
CKC*

BIKE

ENHANCEMENTS

*Bike Share, Green
Bike Intersection,
Bike Boxes*

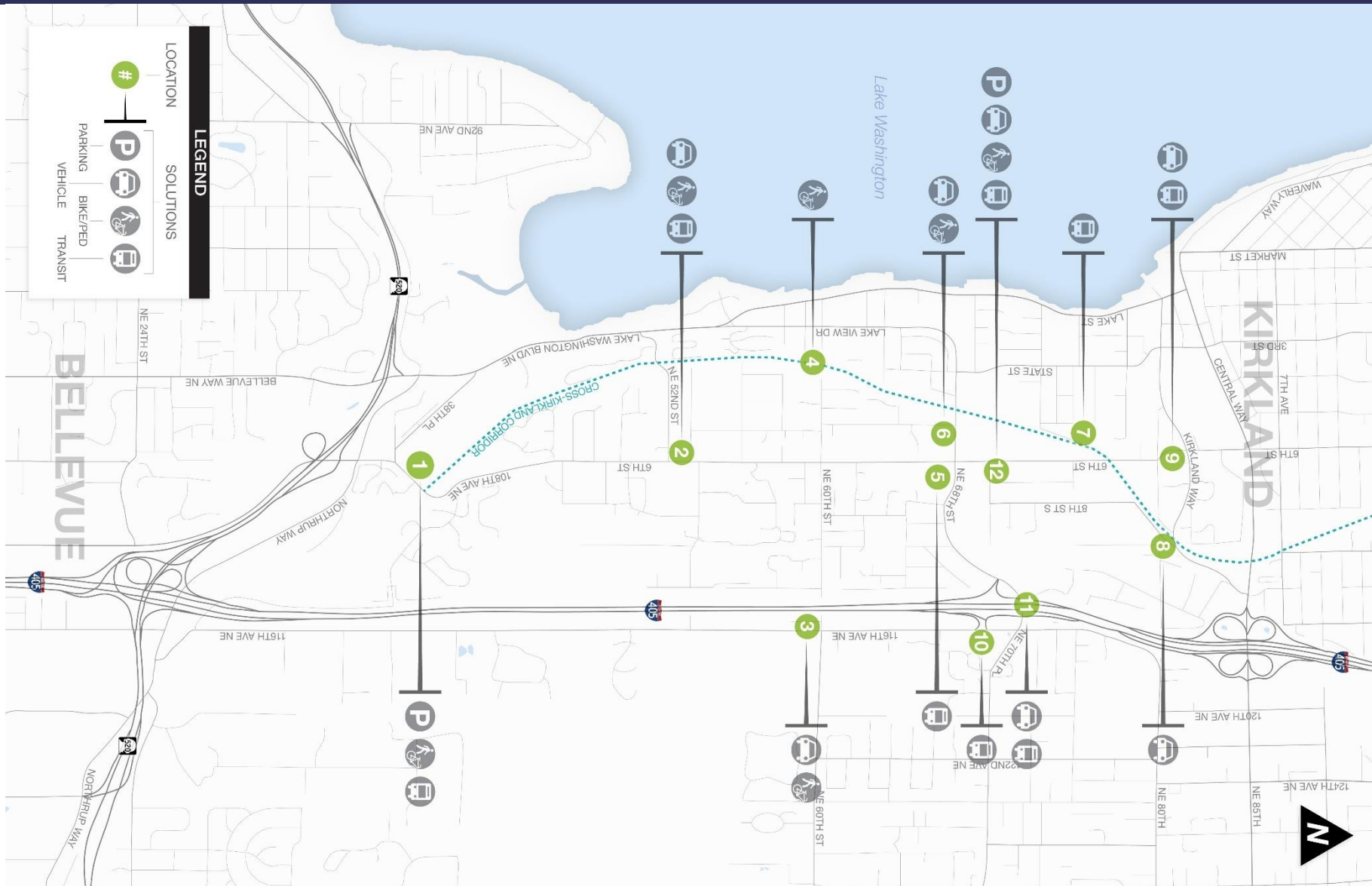
PARKING

*Shared use,
managed parking*

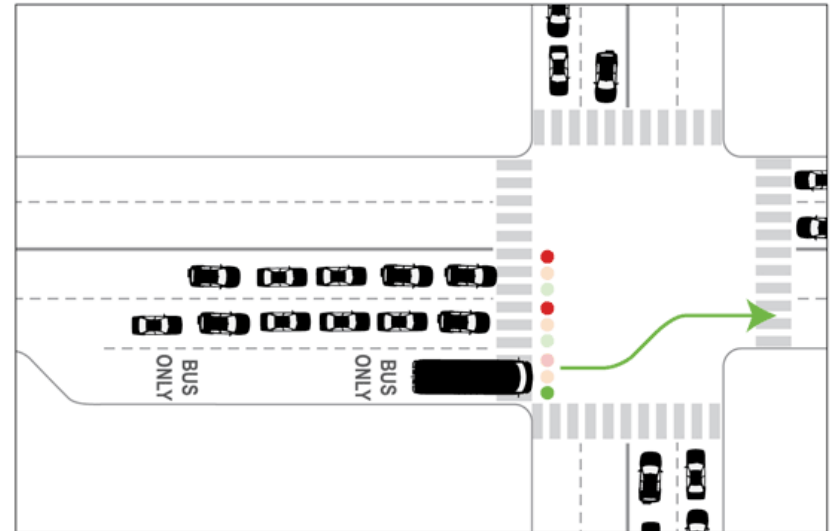
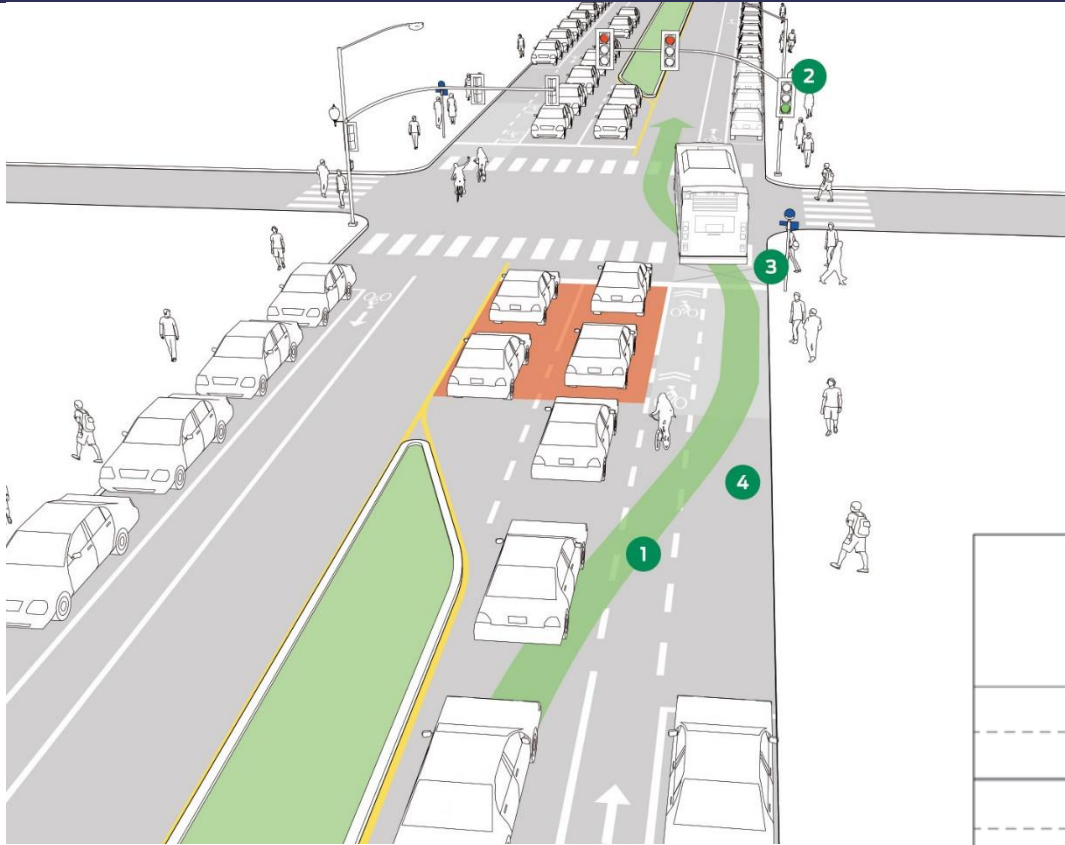
PARK AND RIDE

*Access,
Management,*

Solution Locations



TSP Treatments



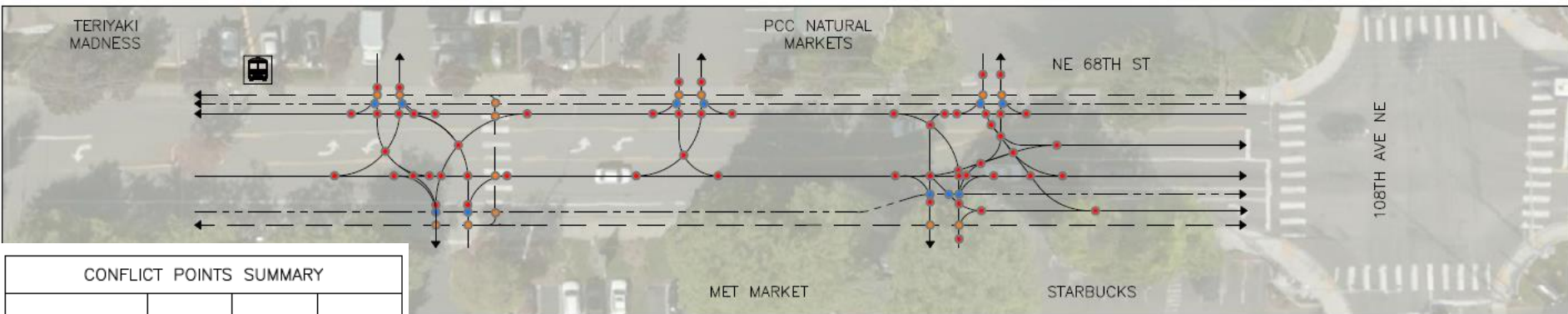
Driveway Conflicts – 68th

Conflicts NE 68th Street

- 55 Vehicle - Vehicle
- 25 Vehicle - Ped/Bike

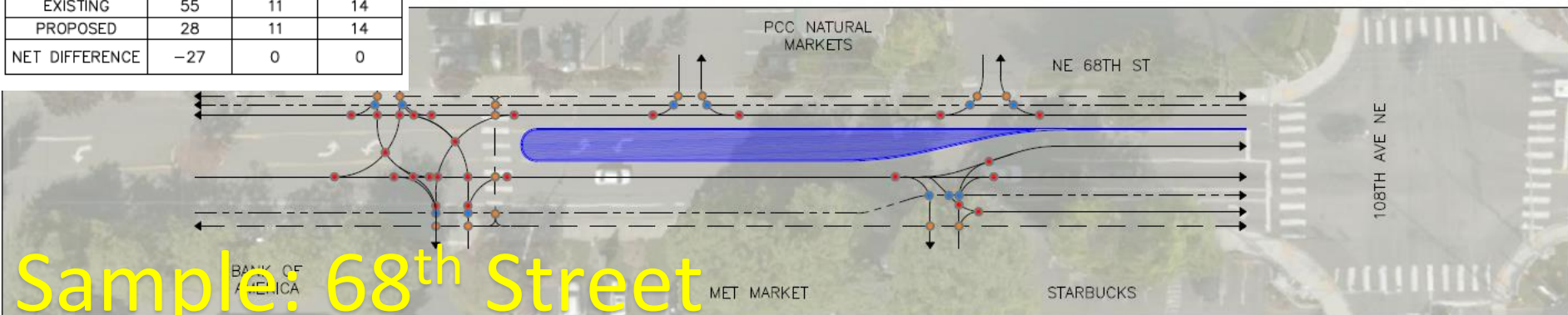
Conflicts 108th Ave NE

- 69 Vehicle - Vehicle
- 24 Vehicle Ped/Bike Conflicts



EXISTING CONDITION

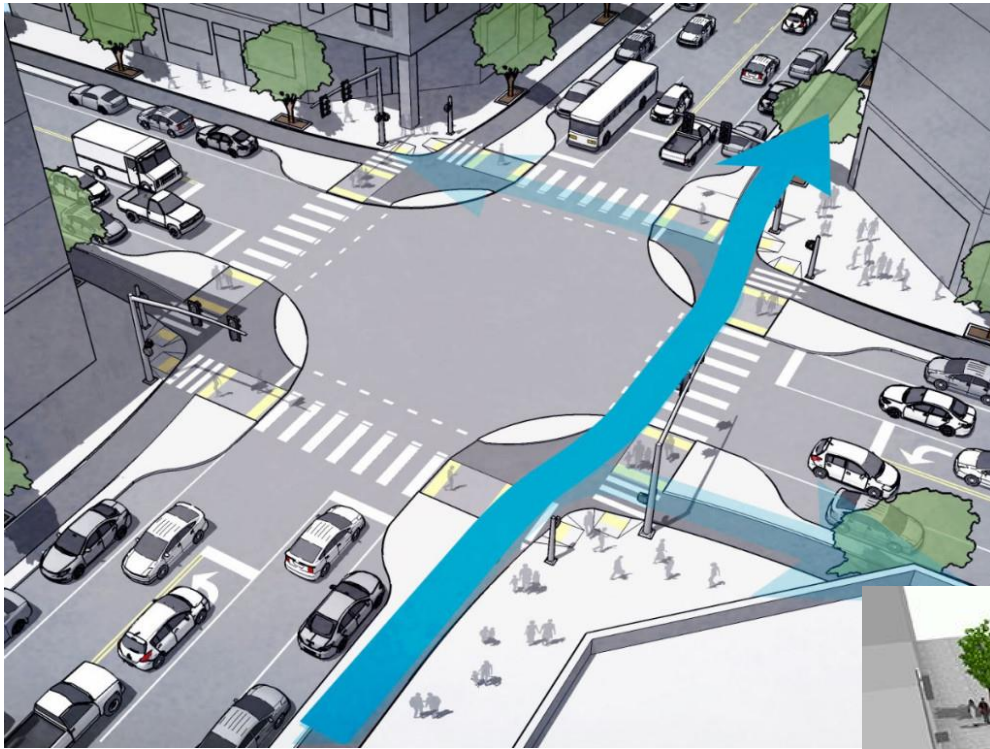
CONFLICT POINTS SUMMARY			
	VEHICLE	BICYCLE	PEDSTRIAN
EXISTING	55	11	14
PROPOSED	28	11	14
NET DIFFERENCE	-27	0	0



PROPOSED CONDITION

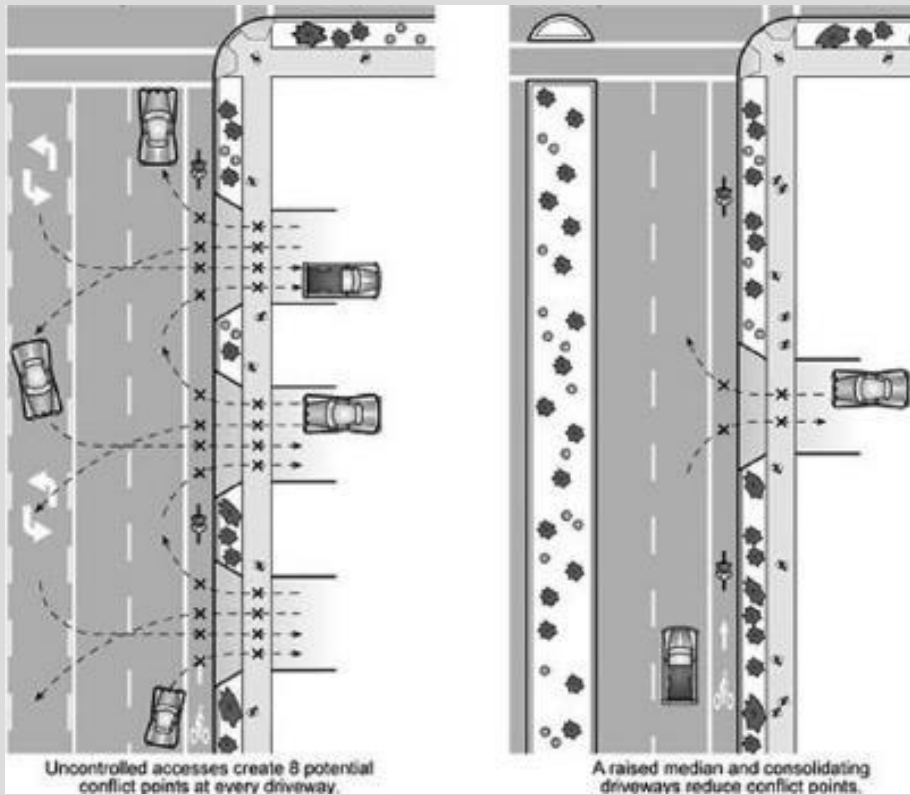
Sample: 68th Street

Bike Intersection



Operations to Improve Connections and Safety

Manage
driveway/intersection
conflicts



Neighborhood greenways
for alternative routes

Parking

Shared use parking



On-street parking



Parking
policies

Enforce time
of day parking

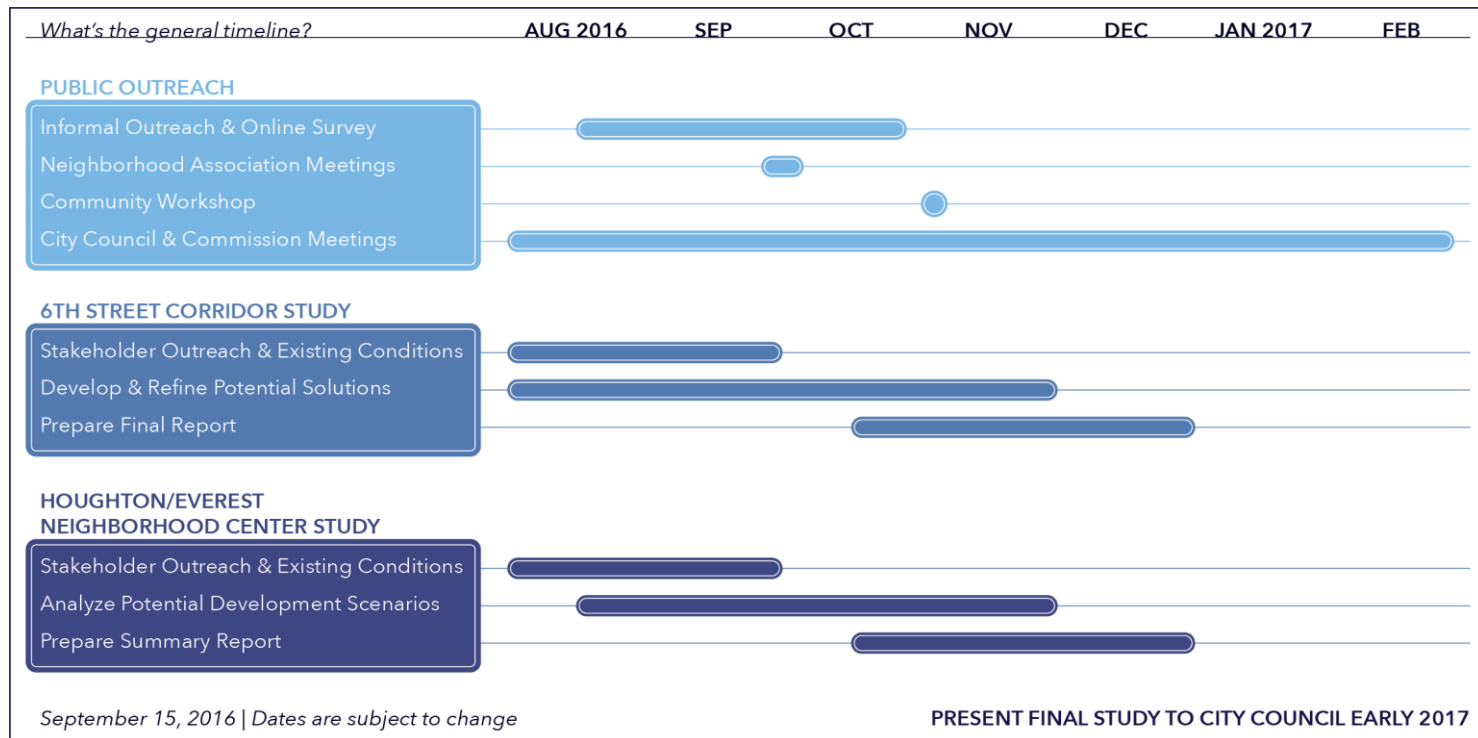


Schedule

Three Major Task Areas

Public Outreach — Summer & Fall 2016

Planning Commission Review — Late 2016



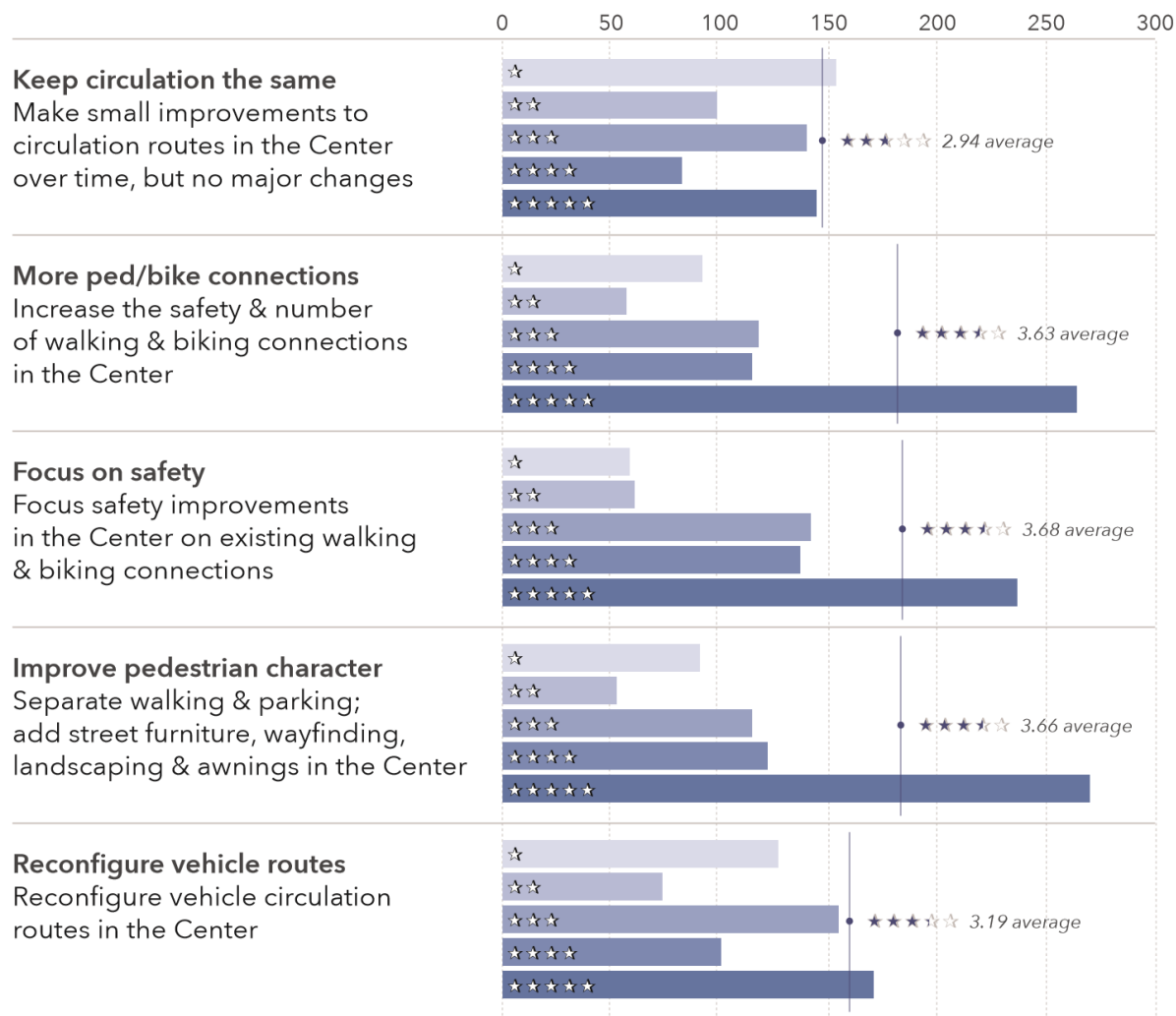
Questions?



Survey Results

QUESTION 2C: CENTER CIRCULATION

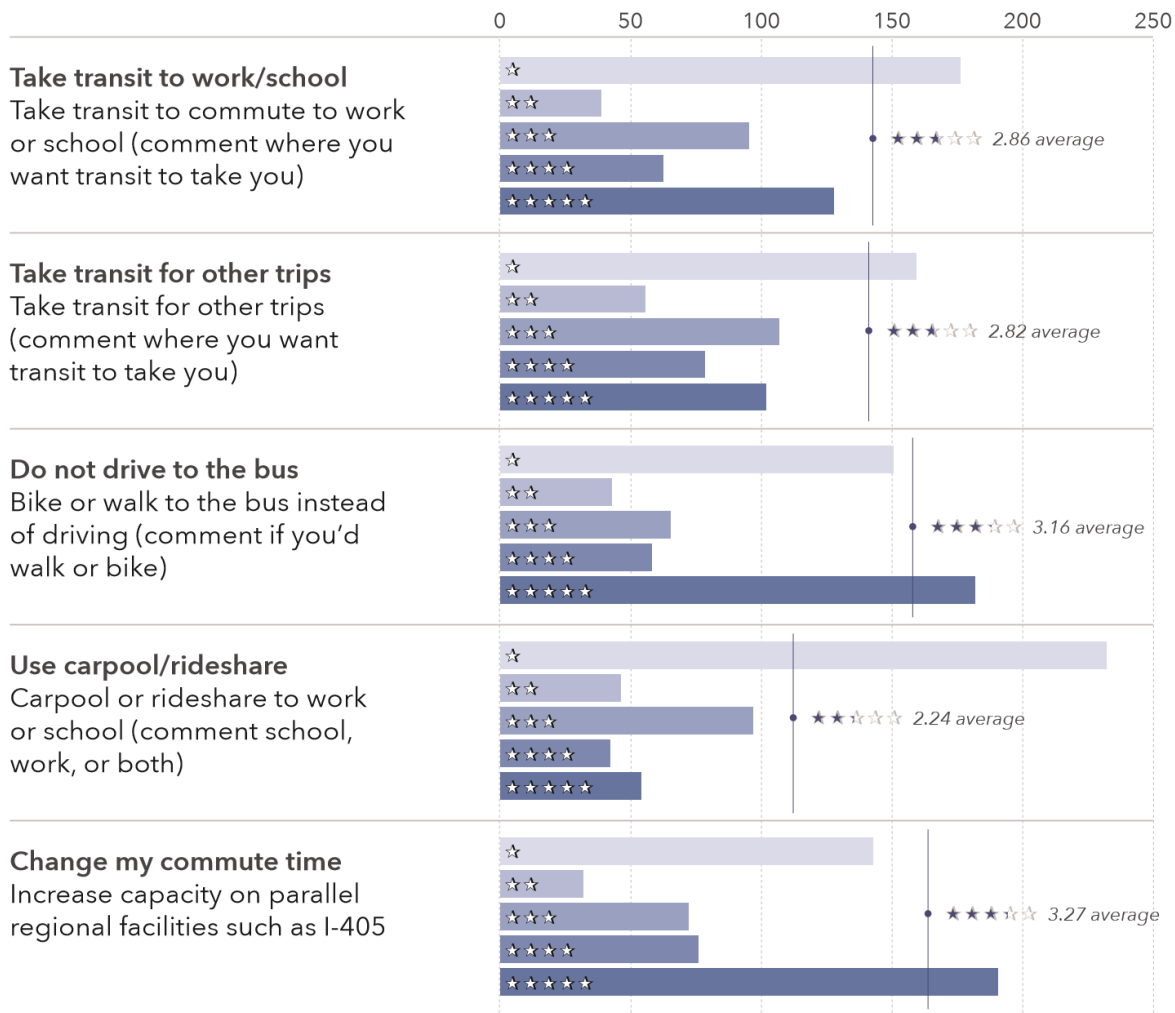
How would you balance circulation in the Center



Survey Results

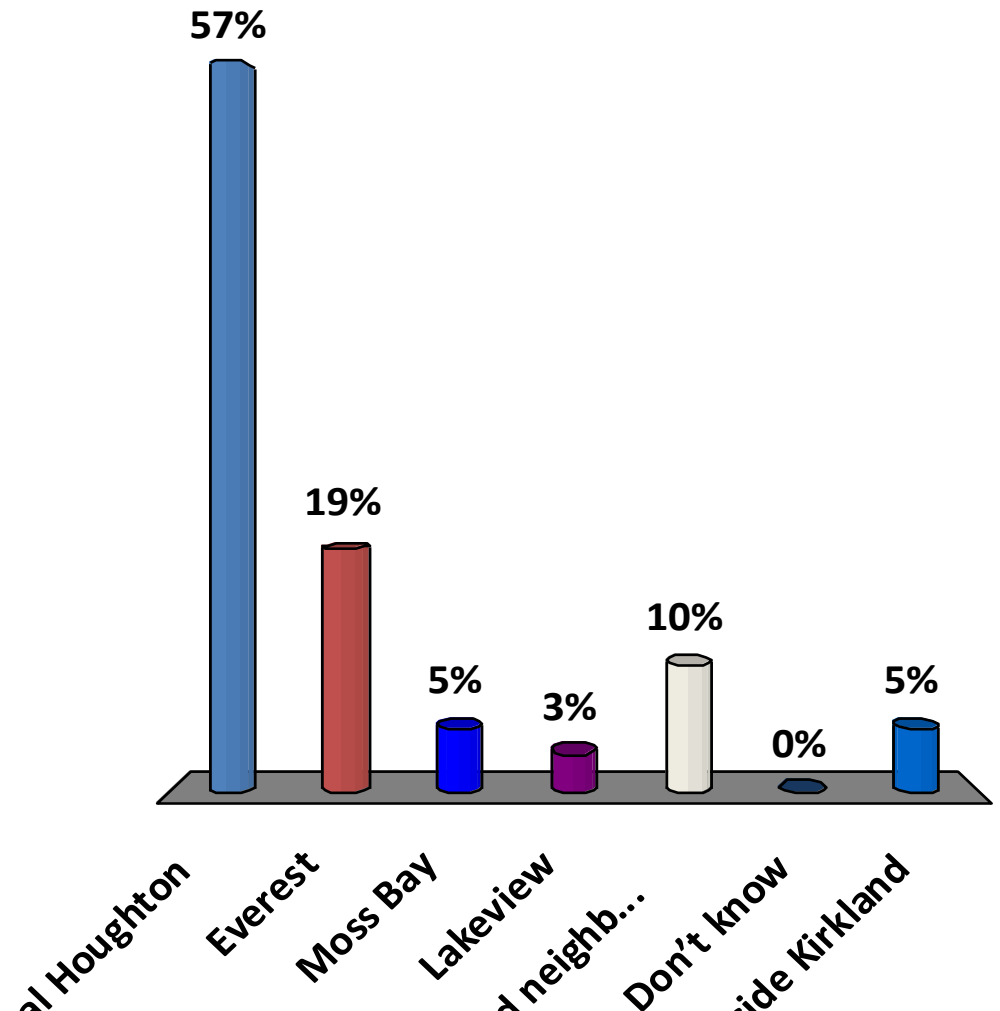
QUESTION 2E: TRANSPORTATION OPTIONS

How would you help improve travel in the corridor?



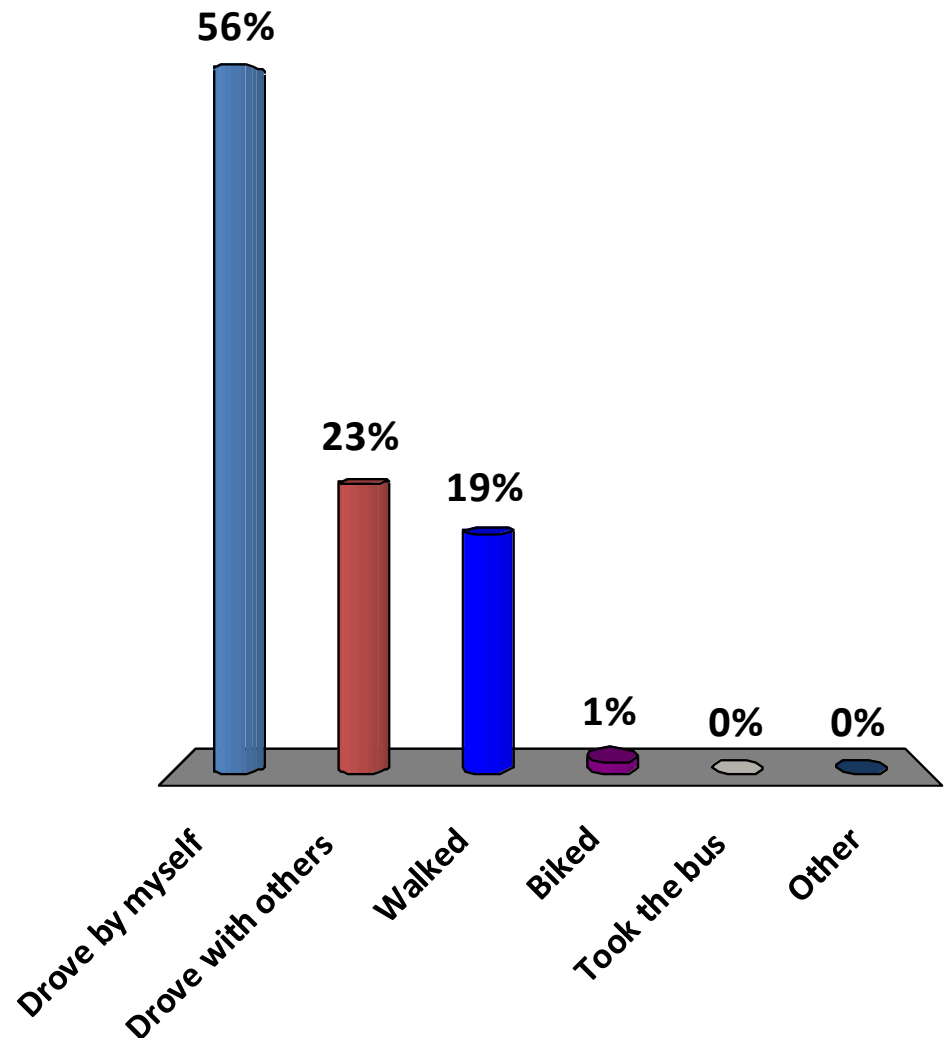
Where do you live or work?

- A. Central Houghton
- B. Everest
- C. Moss Bay
- D. Lakeview
- E. Other Kirkland neighborhood
- F. Don't know
- G. Outside Kirkland



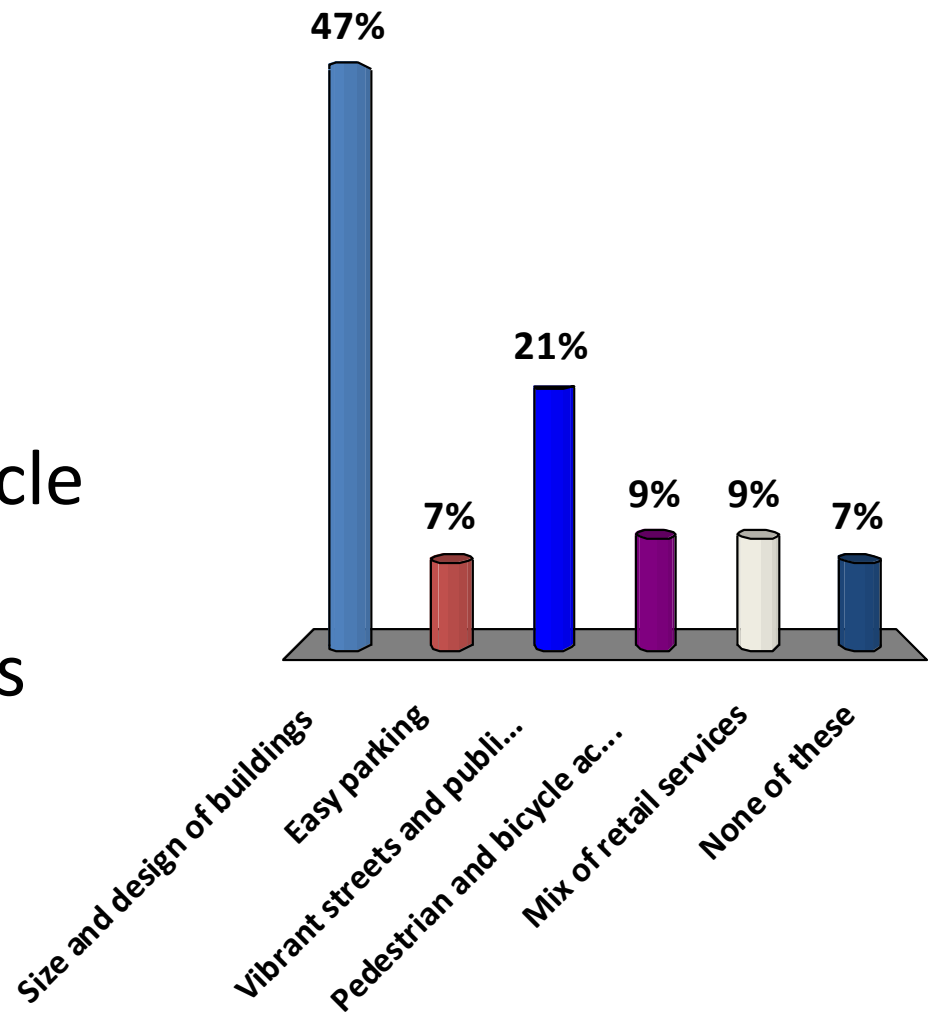
How did you get to tonight's meeting?

- A. Drove by myself
- B. Drove with others
- C. Walked
- D. Biked
- E. Took the bus
- F. Other



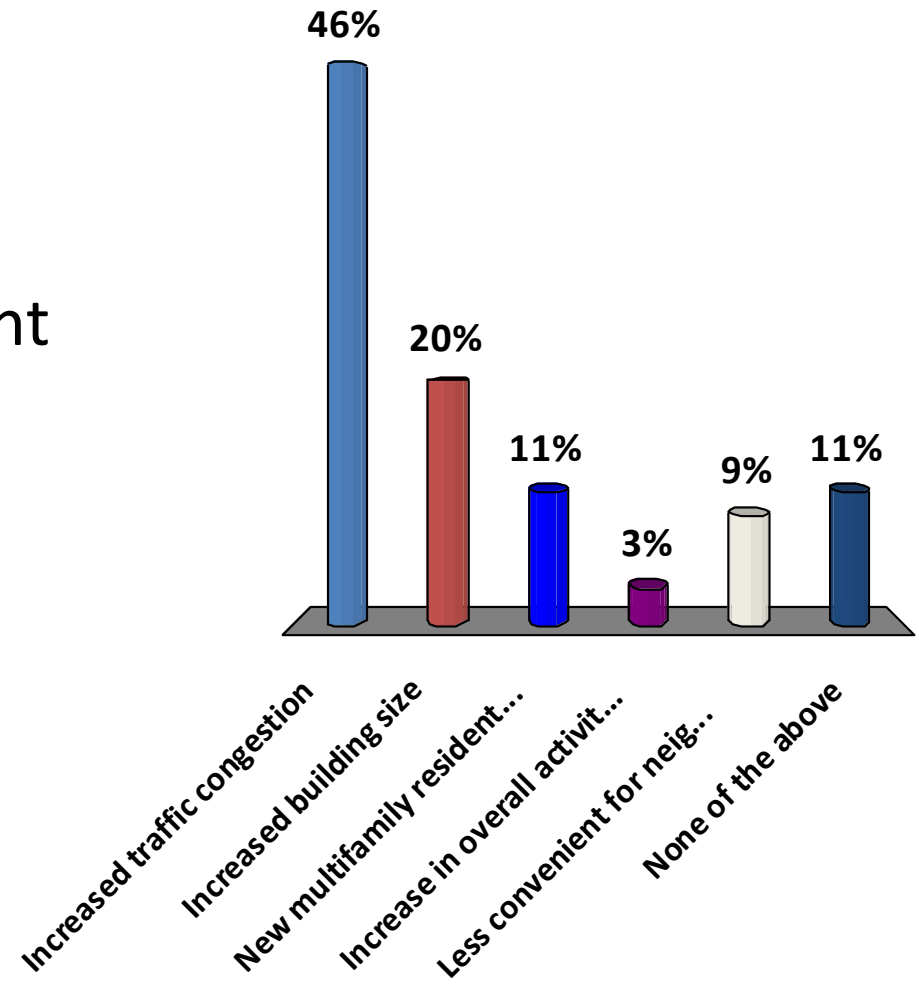
What is the most important aspect of community character to you?

- A. Size and design of buildings
- B. Easy parking
- C. Vibrant streets and public spaces
- D. Pedestrian and bicycle access
- E. Mix of retail services
- F. None of these



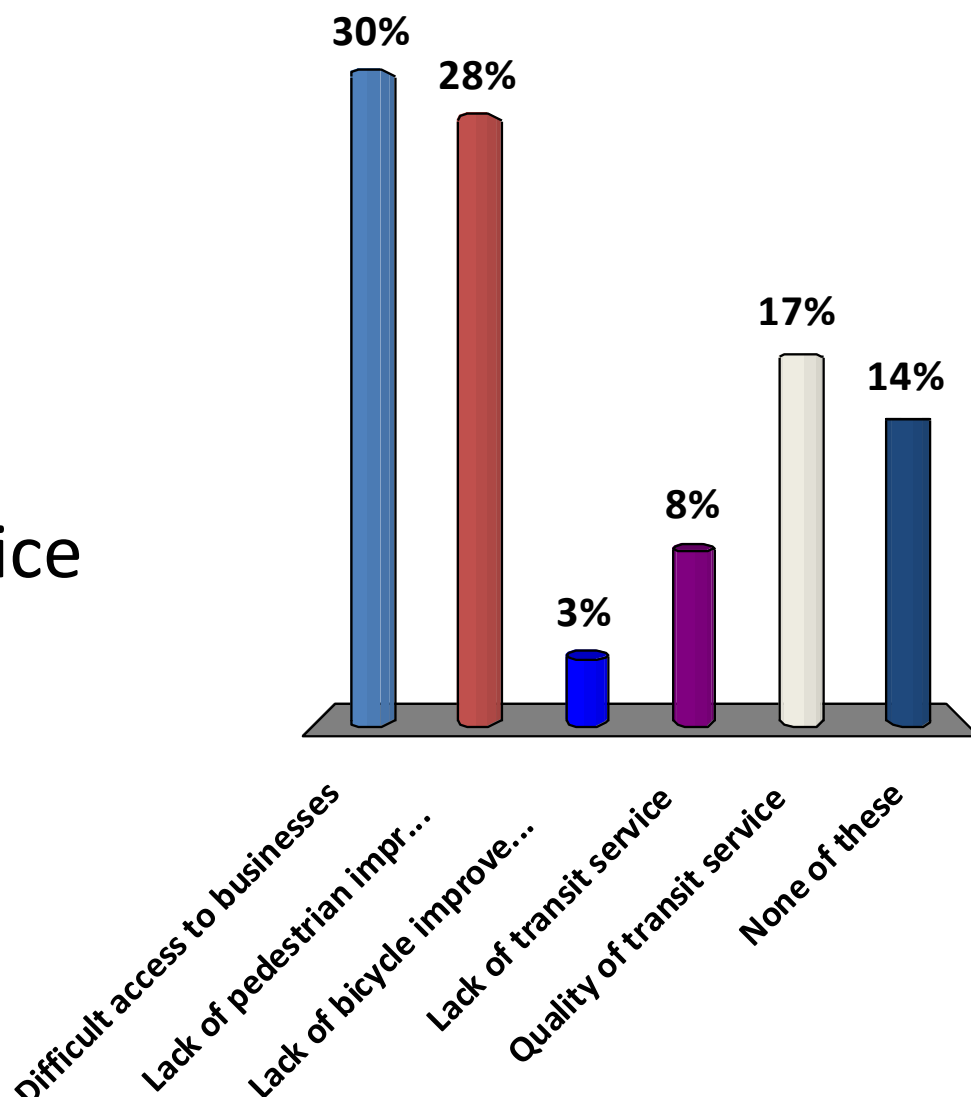
What is your biggest concern about development in the Neighborhood Center?

- A. Increased traffic congestion
- B. Increased building size
- C. New multifamily residential development
- D. Increase in overall activity levels
- E. Less convenient for neighborhood
- F. None of the above



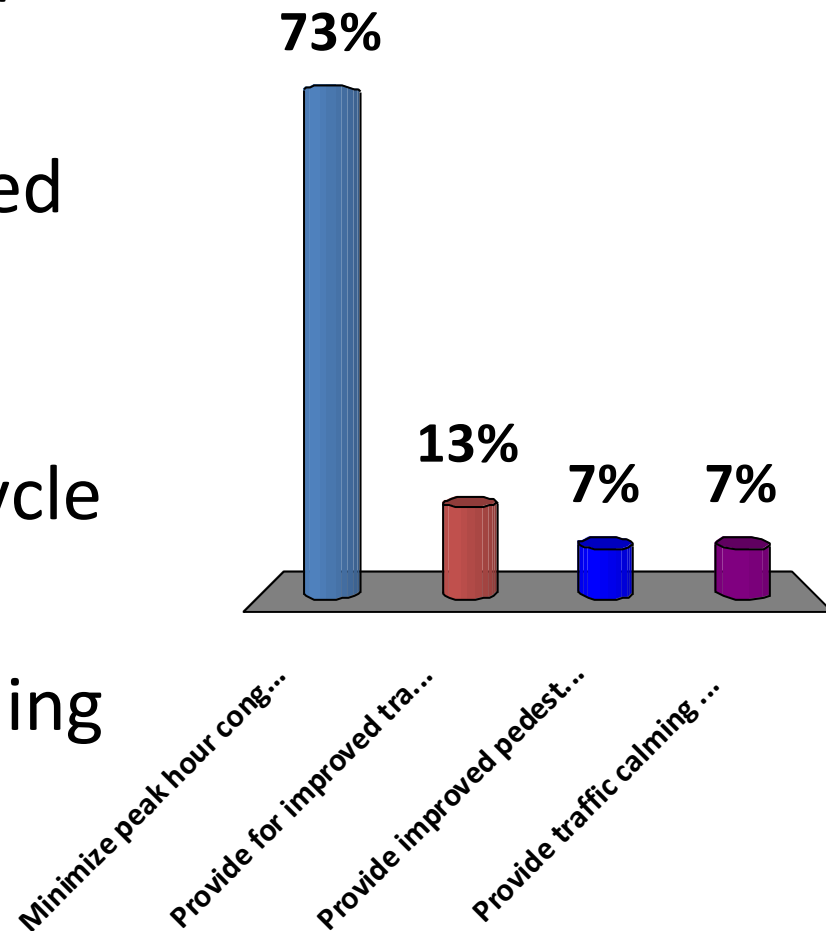
In addition to traffic congestion, what is the most important mobility challenge for the 6th Street Corridor?

- A. Difficult access to businesses
- B. Lack of pedestrian improvements
- C. Lack of bicycle improvements
- D. Lack of transit service
- E. Quality of transit service
- F. None of these



What is the highest priority for improvements to the 6th Street Corridor?

- A. Minimize peak hour congestion
- B. Provide for improved transit service
- C. Provide improved pedestrian and bicycle circulation
- D. Provide traffic calming improvements

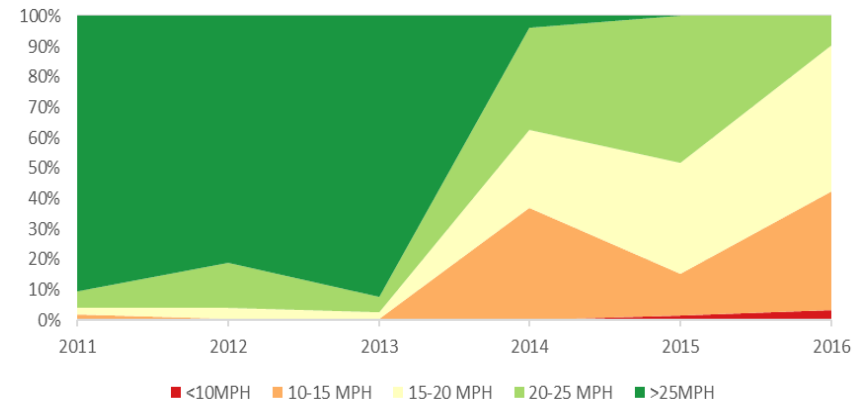


Congestion during peak times

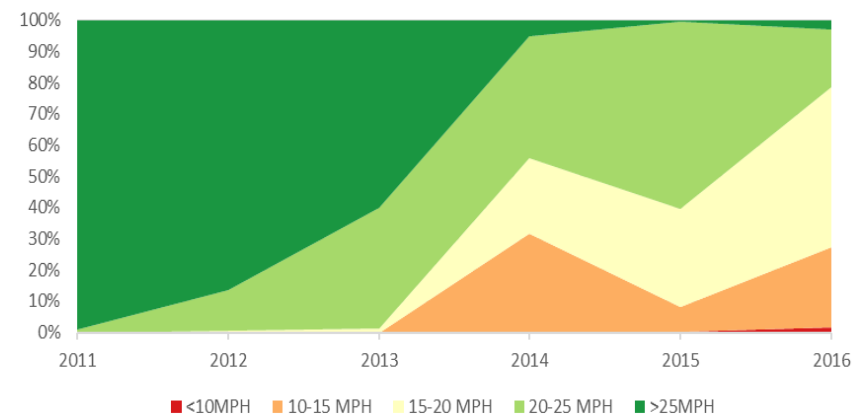
CONGESTION ON 6th and 108th

- has grown and will continue to grow regardless of development in the corridor
- is connected to congestion on regional facilities
- may encourage cut through on local streets
- less than 2 hours per day
- increased post recession
- impacts reliability of transit and other modes

5-6 PM



6-7 PM



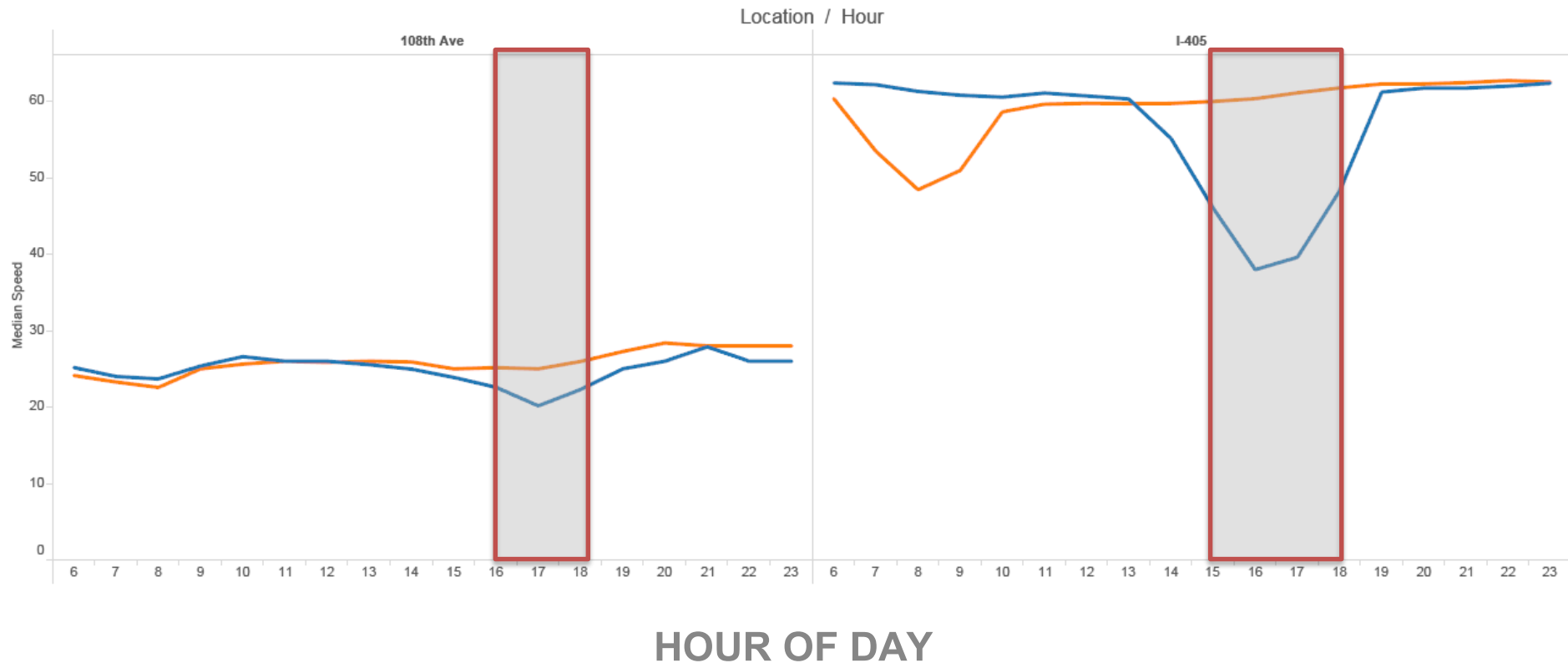
Travel Speeds



Speed by Hour

108th Ave

I-405



Northbound

Southbound

Data from November 2015
and March 2016

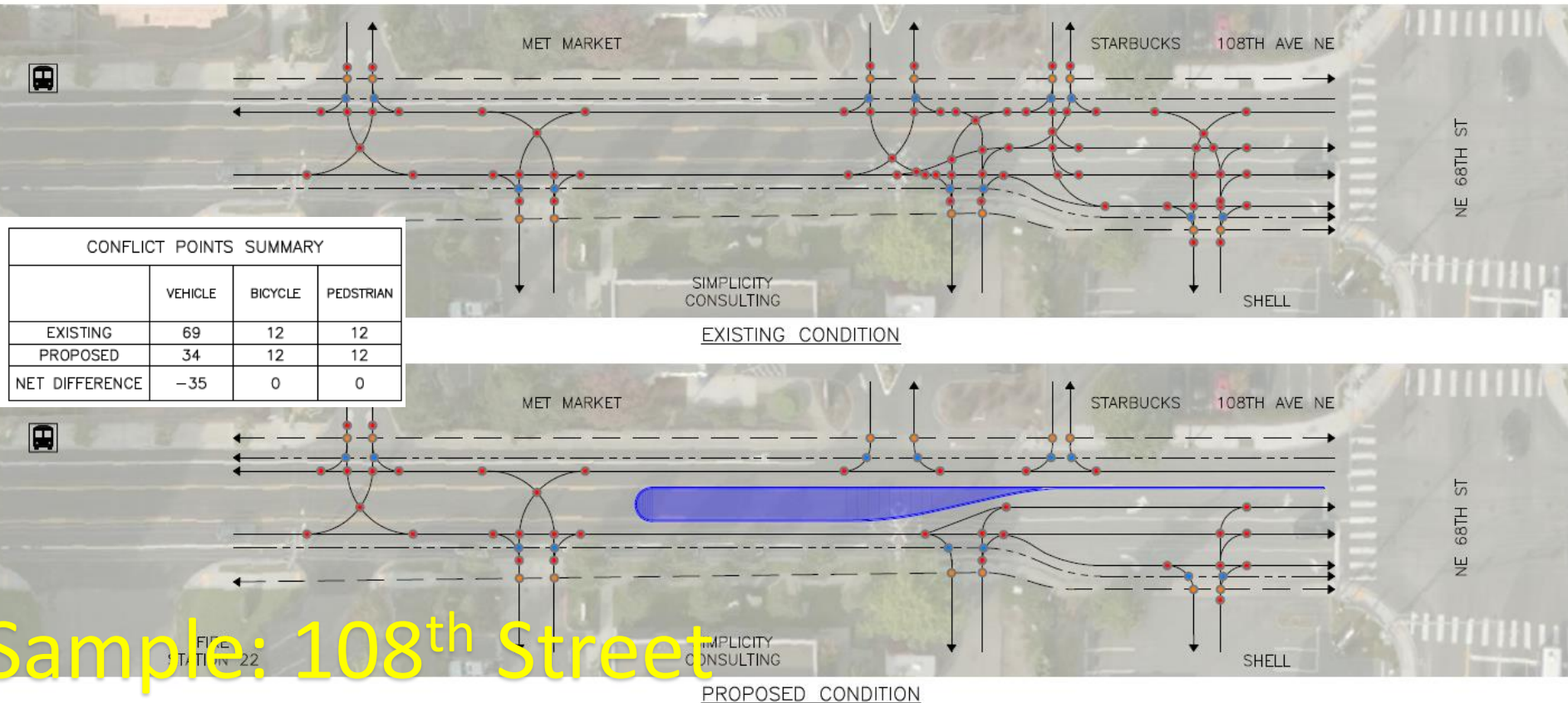
Driveway Conflicts – 108th

Conflicts NE 68th Street

- 55 Vehicle - Vehicle
- 25 Vehicle - Ped/Bike

Conflicts 108th Ave NE

- 69 Vehicle - Vehicle
- 24 Vehicle Ped/Bike Conflicts



Mobility – Moving People Efficiently

Who is using the
corridor today

Transport choices
people make

How effective are
those choices

How is the transportation
system changing in the
future to accommodate
more volume

Parking

Parking is
available

Space allotted on street
for parking is used

Businesses have
adequate parking

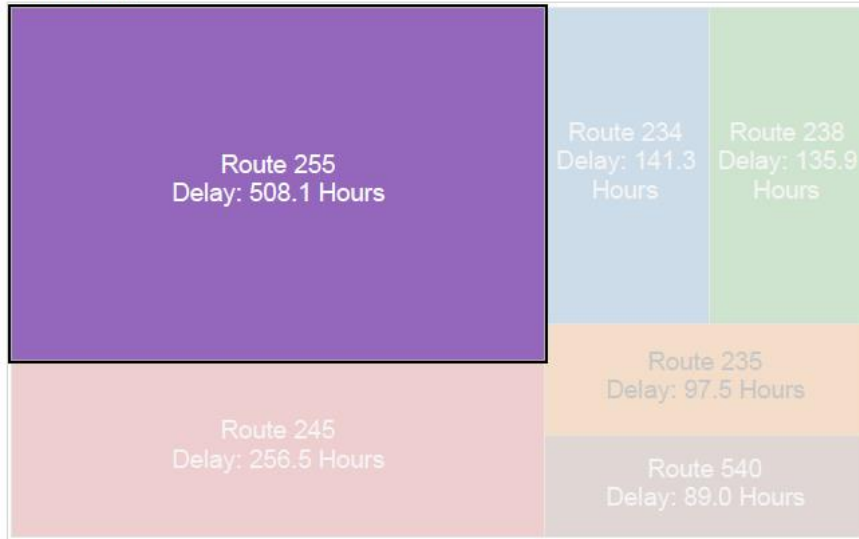
Circulation can
be an issue

S Kirkland Park and Ride – Historic Use

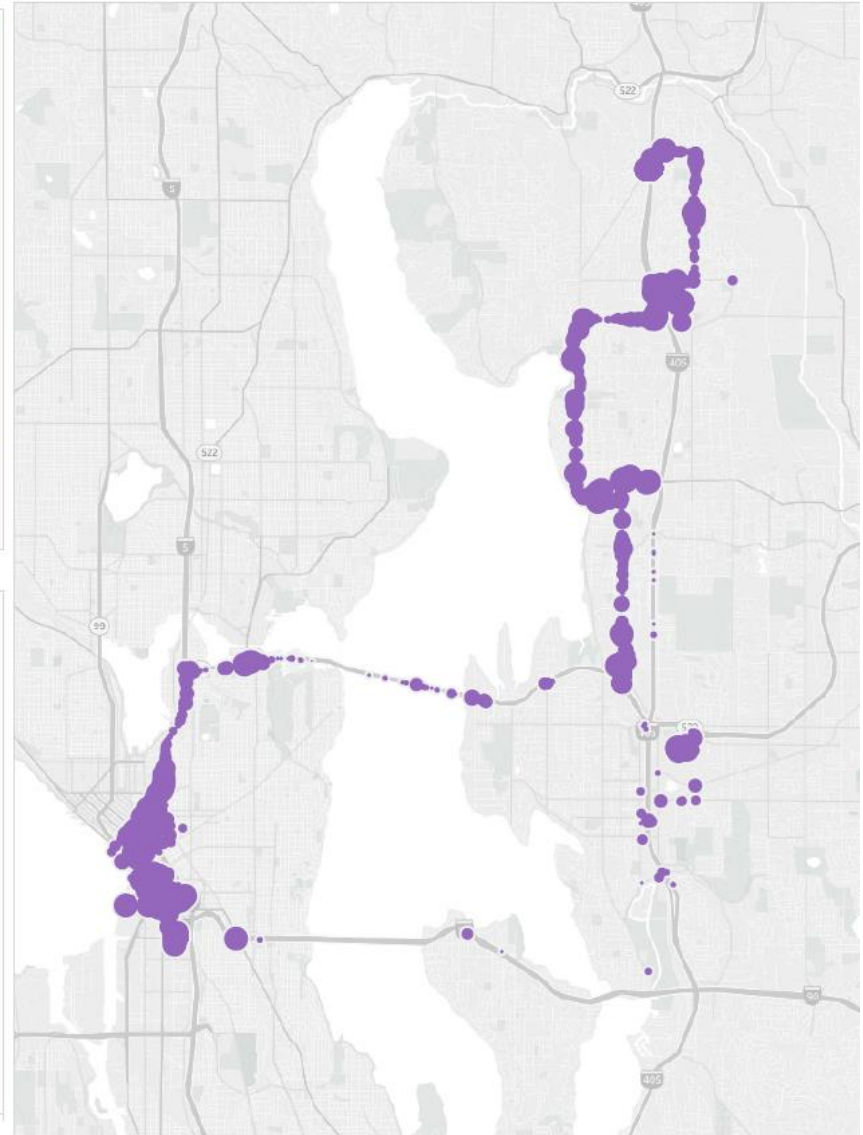


255 - Transit Delay

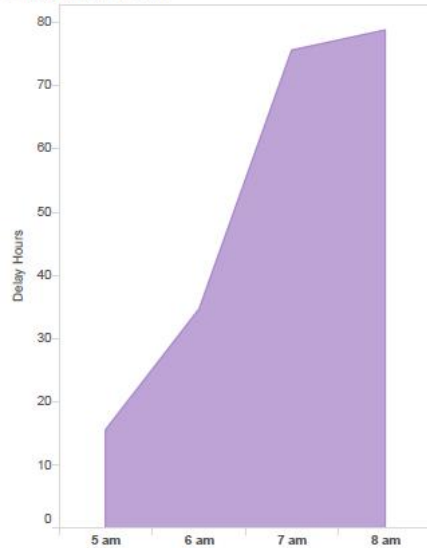
Total Delay



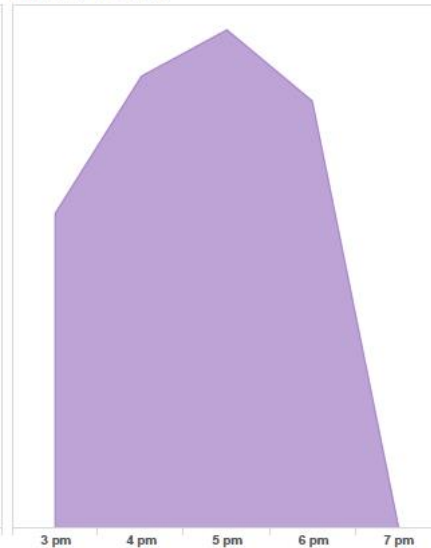
Map



Delay by Hour AM

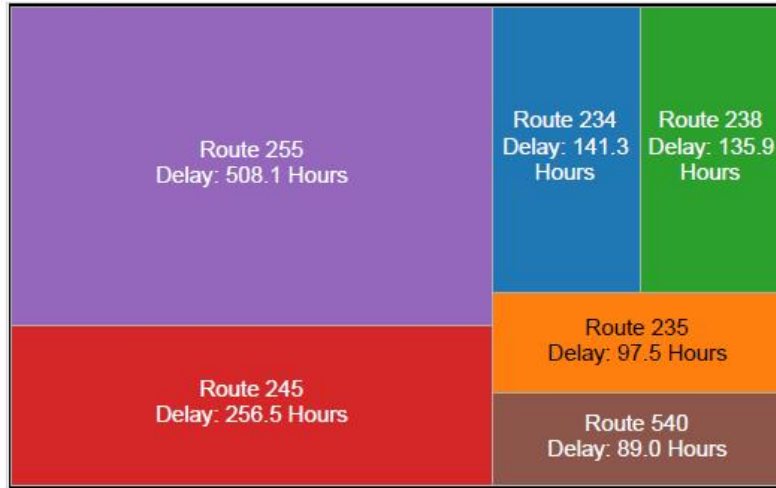


Delay by Hour PM

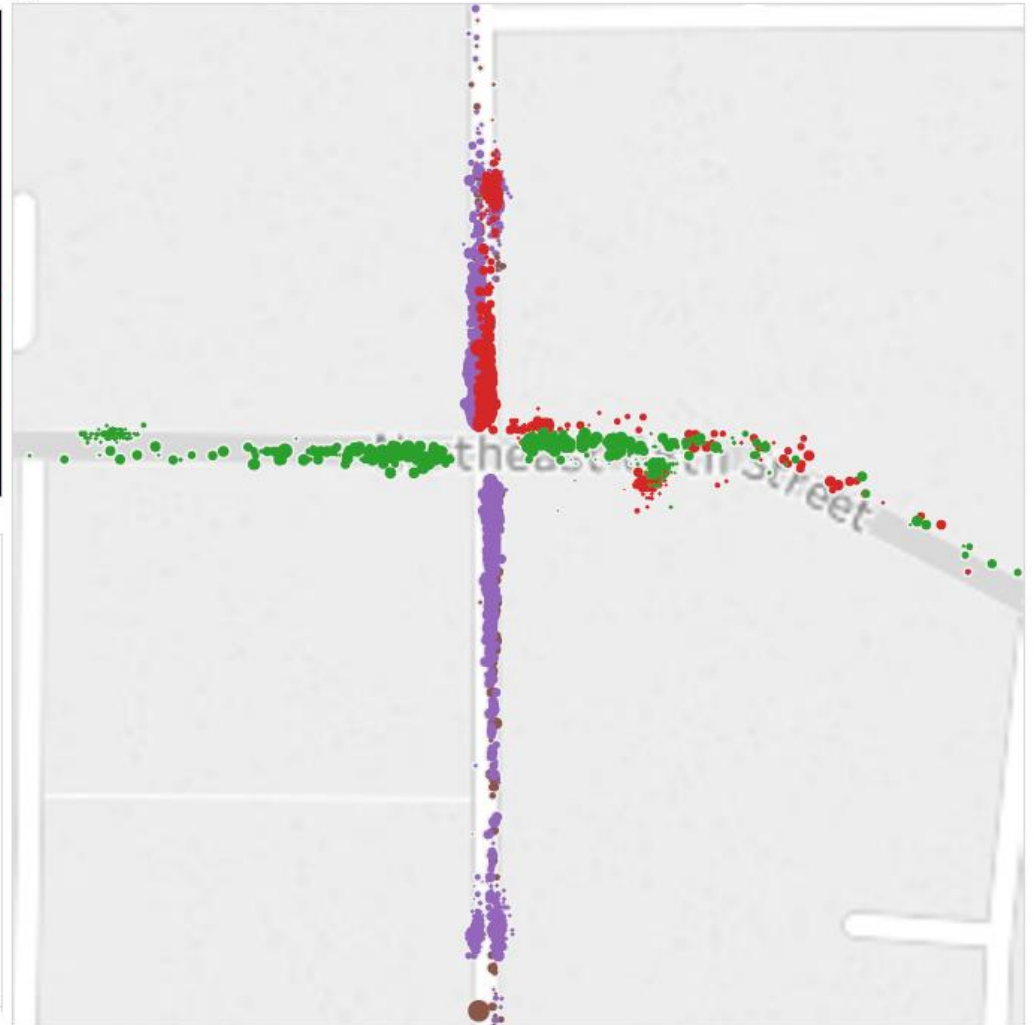


68th St / 108th Ave Intersection – Transit Delay

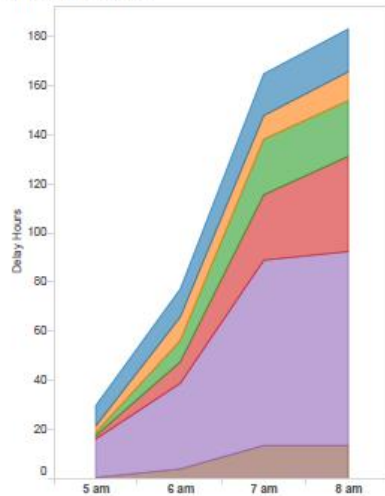
Total Delay



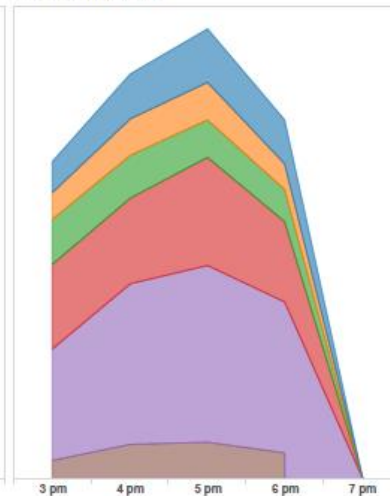
Map



Delay by Hour AM

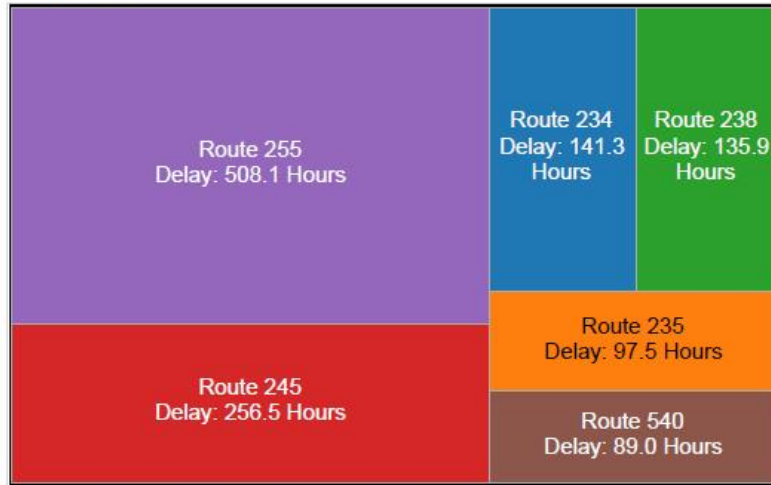


Delay by Hour PM

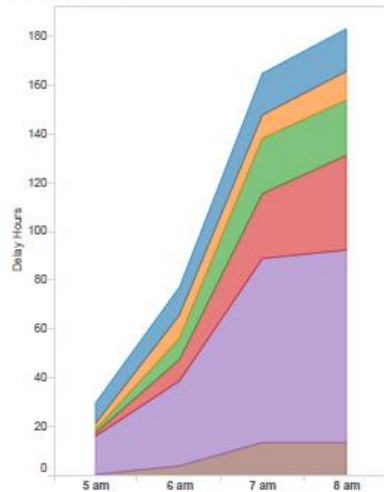


Kirkland Way Intersection – Transit Delay

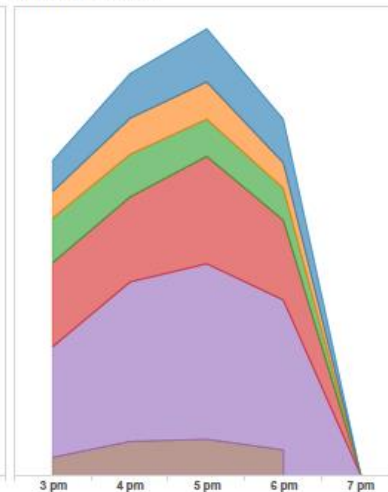
Total Delay



Delay by Hour AM



Delay by Hour PM

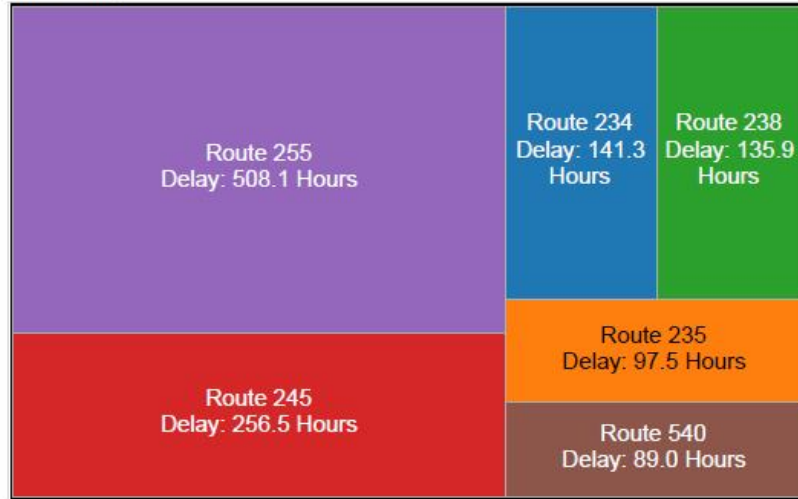


Map

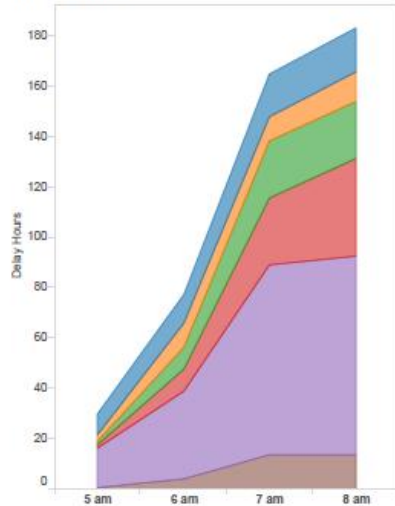


S Kirkland P&R – Transit Delay

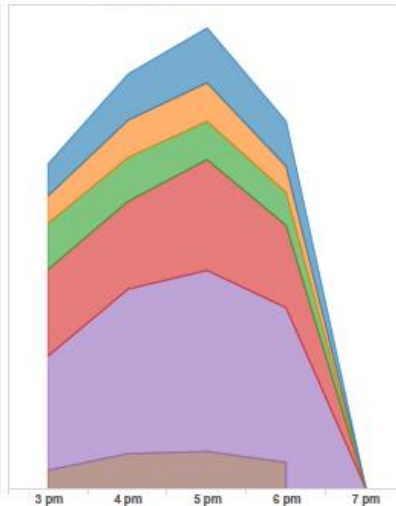
Total Delay



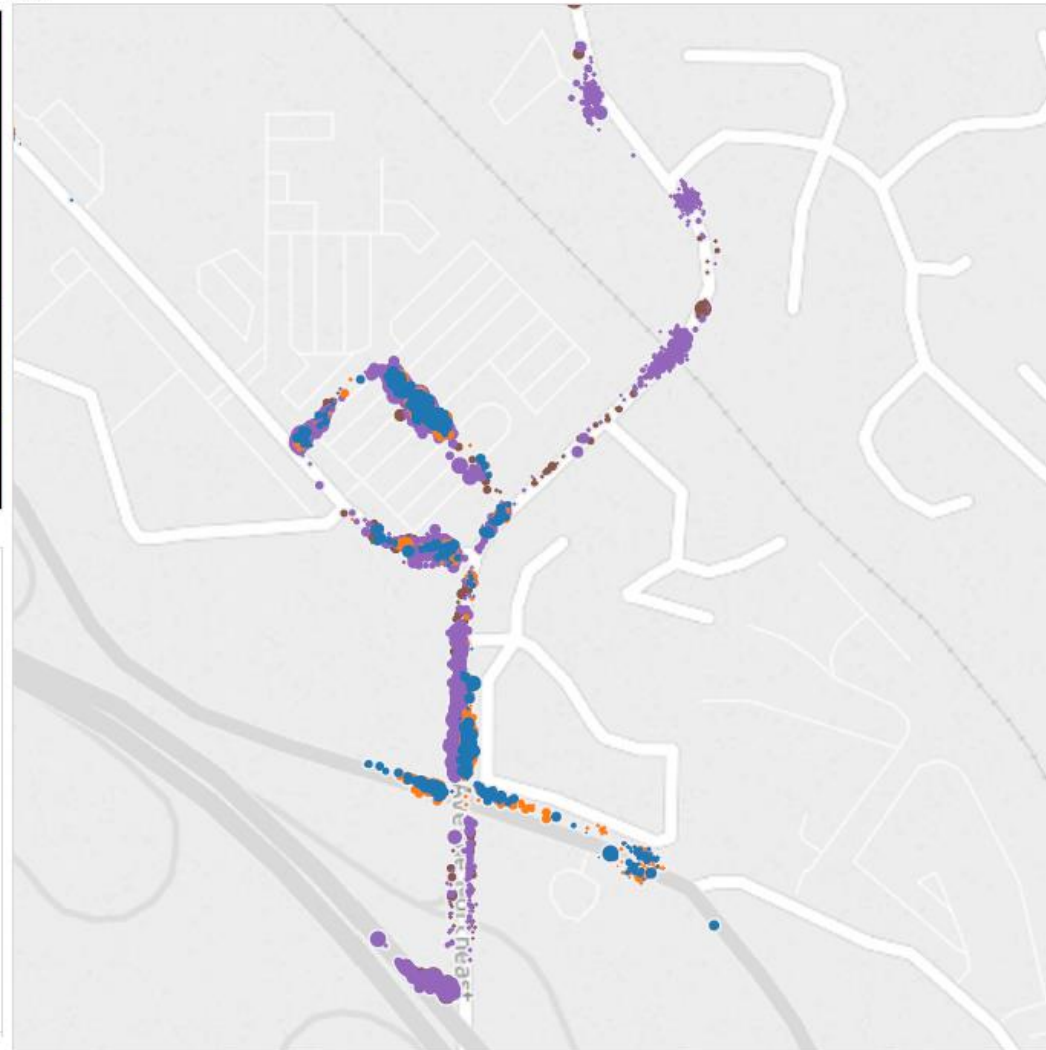
Delay by Hour AM



Delay by Hour PM



Map



Legend

- Bike Collision
- Pedestrian Collision
- Vehicle Collision
- Cross Kirkland Corridor
- Waterbody
- Park / Open Space
- City Limits

- 23 total collisions
- 12 injuries
- 4 involving a bicycle or pedestrian
- 10 rear-ends

- 97 total collisions
- 6 pedestrian collisions
- 2 bicycle collisions

- 46 total collisions
- 1 pedestrian collision
- 2 bicycle collisions

Congestion

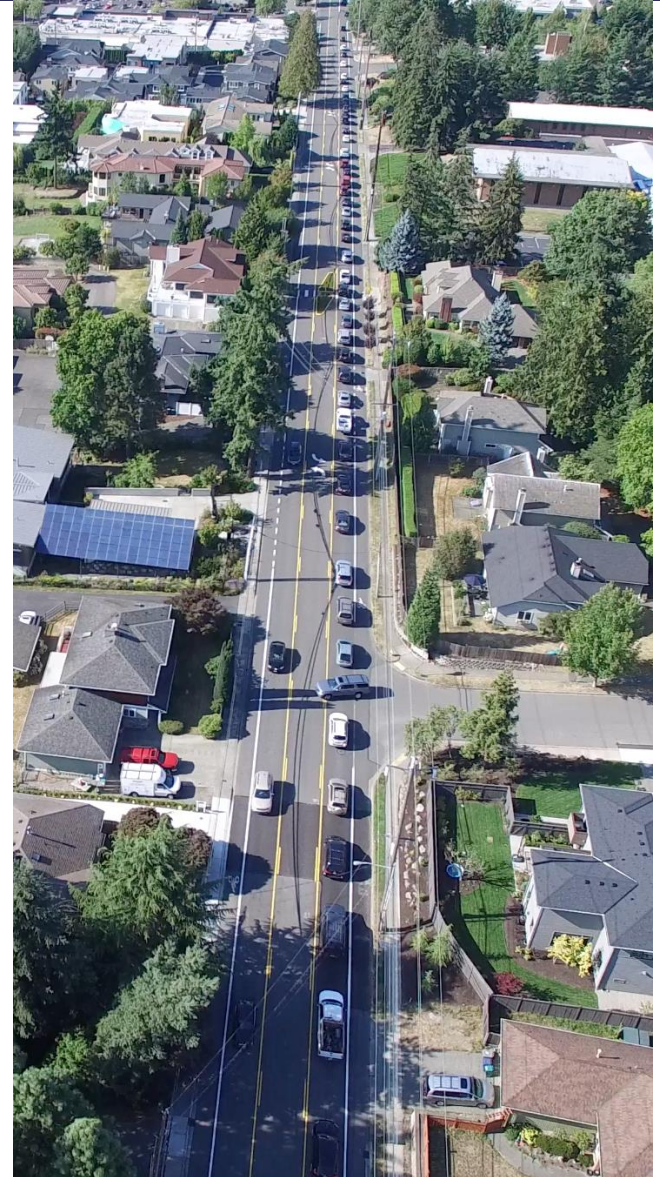
Widen the corridor to add vehicle lanes

Widen at pinch points or to relieve bottlenecks

Discourage regional traffic

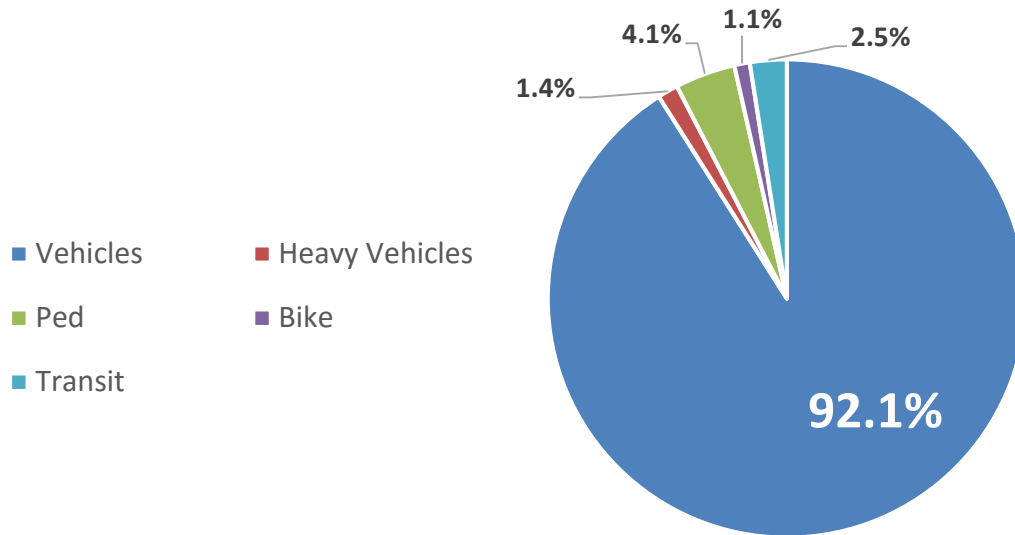
More efficient modes of transportation

- Carpooling
- Better use of transit
- Other



Congestion

Estimated Mode Split – 108th Ave (PM Peak Hour)



Walk and Bike Connection

WALKABILITY

- Walk Score = Market Value
- Growing volumes
- No gaps for schools

BIKE CONNECTIVITY

- Connections to trail
- Growing volumes



Source: Walk Score

What can we do?

- Ideas/Strategies/Solutions
- Grouped By Mode:
 - Pedestrian
 - Bicycle
 - Transit
 - Vehicular
 - Parking

Pedestrians

Festival Street/Woonerfs

Opportunities:

- Provide space for events like farmers market
- Provides “place making” opportunities
- Design can reduce storm water runoff

Constraints:

- Feasibility driven by land use

Sample:

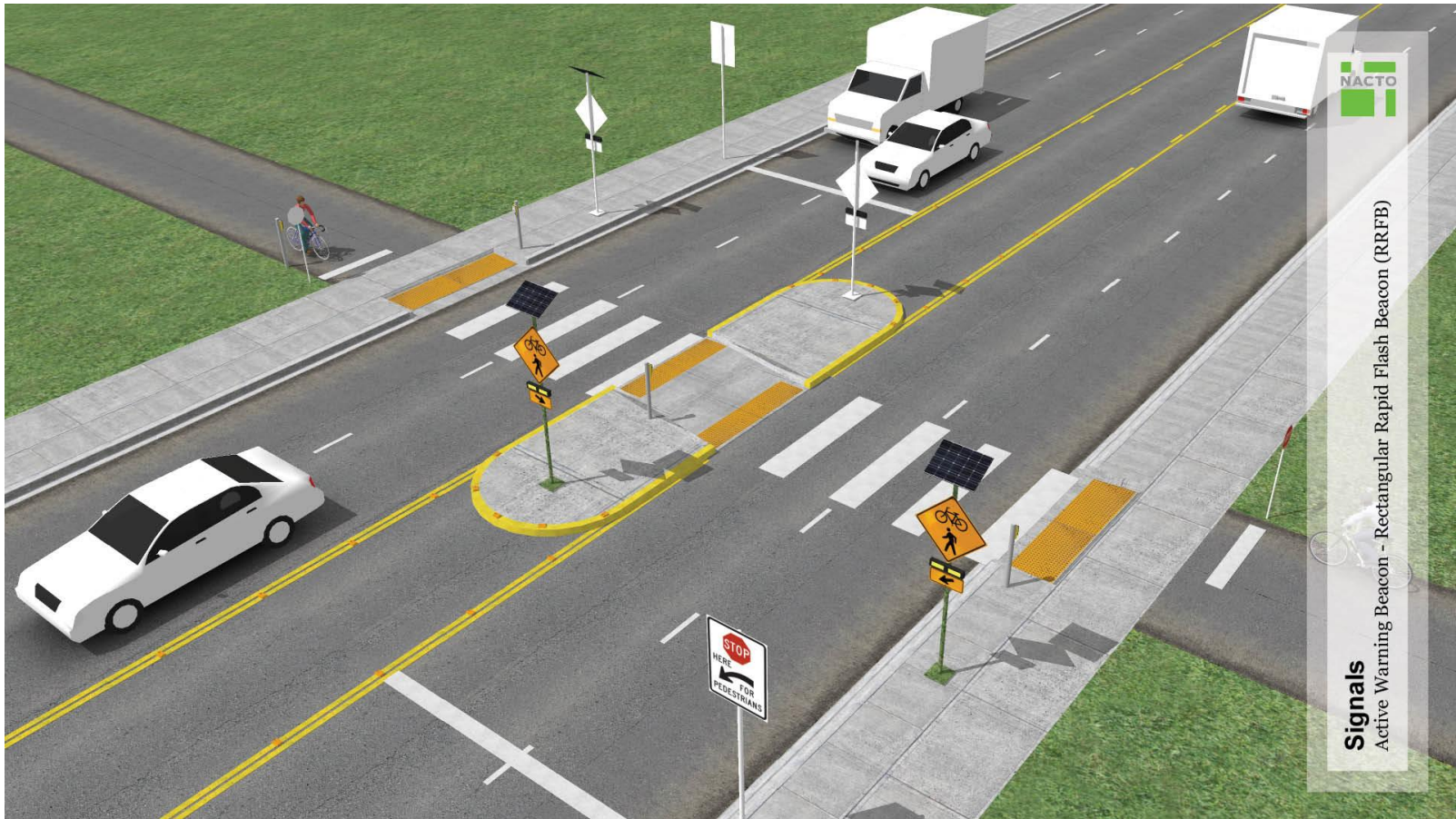
- Park Lane

Application:

- North/South through development
- East/West to trail



Crossing Strategies



Crossing Strategies

Opportunities:

- Hawk, RRFB, median refuge, table, beacons
- Improve safety at crossings
- Provide more direct crossing options

Constraints:

- Must work with other aspects of street design
- Costs of installation and maintenance

Sample:

- CKC trail crossings

Example:

- NE 68th street in study area
- 6th Street by Google

Sidewalk Enhancements/Additions

Opportunities:

- Widen sidewalk and add buffers
- Improve connectivity of pedestrian network
- Improves pedestrian comfort
- Supports enhanced urban design

Constraints:

- Expensive unless associated with new developed

Sample:

- NE 85th Street in Rose Hill

Example:

- 68th Street
- Segments on 108th/6th Street

Connectivity Enhancements/Additions

Opportunities:

- Improve access points to CKC
- Formalize access points and improve accessibility
- Provides place making opportunities

Constraints:

- Topography can limit feasibility/type of improvement

Sample:

- Crestwood Park CKC Access Points

Example:

- Access to CKC along trail or within study area

Bicycle Treatments

- Upgrade existing facilities
- Upgrade intersections
- Bike share/Bike Parking
- Neighborhood greenway network

Upgrade existing bicycle facilities



Upgrade existing bicycle facilities

Opportunities:

- Upgrade existing facilities to meet needs of all ages and abilities
- Address small gaps in network
- Could include:
 - Replace shared marked lanes with bike lanes
 - Adjust lane widths
 - Add striped/physical buffer
 - Two-way protected bike lanes

Constraints:

- Existing roadway geometry
- Needs of other modes

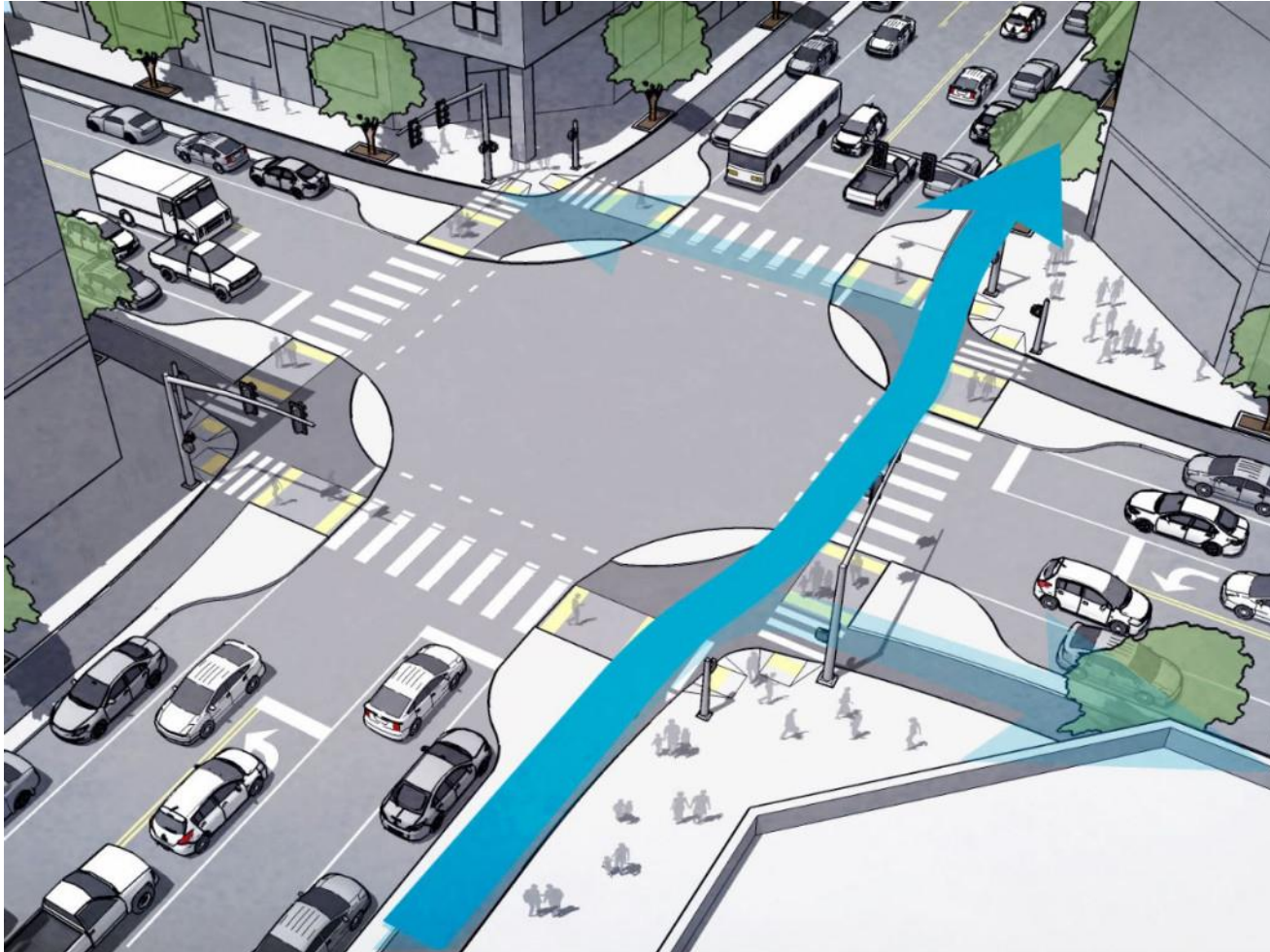
Sample:

- NE Juanita Drive

Example:

- Lake Washington Blvd
- 108th Ave shared marked lanes (NE 52nd to NE 53rd Street)
- NE 68th Street

Upgrade intersections



Upgrade intersections

Opportunities:

- Upgrade existing facilities to meet needs of all ages and abilities
- Reduce bike-vehicle conflicts
- Address small gaps in network
- Could include:
 - Green bike lane at conflict points
 - Protected bike intersection

Constraints:

- Existing roadway geometry
- Utility conflicts
- Adjacent property

Example:

- NE 68th Street/108th street

Bike Share/Bike Parking



Bike Share/Bike Parking

Opportunities:

- Cross Kirkland Corridor major demand corridor
- Major destinations along CKC including study area
- Connection Washington Partnership funds

Constraints:

- Coverage/station density
- Residential/employment density

Neighborhood greenway network



Neighborhood greenway network

Opportunities:

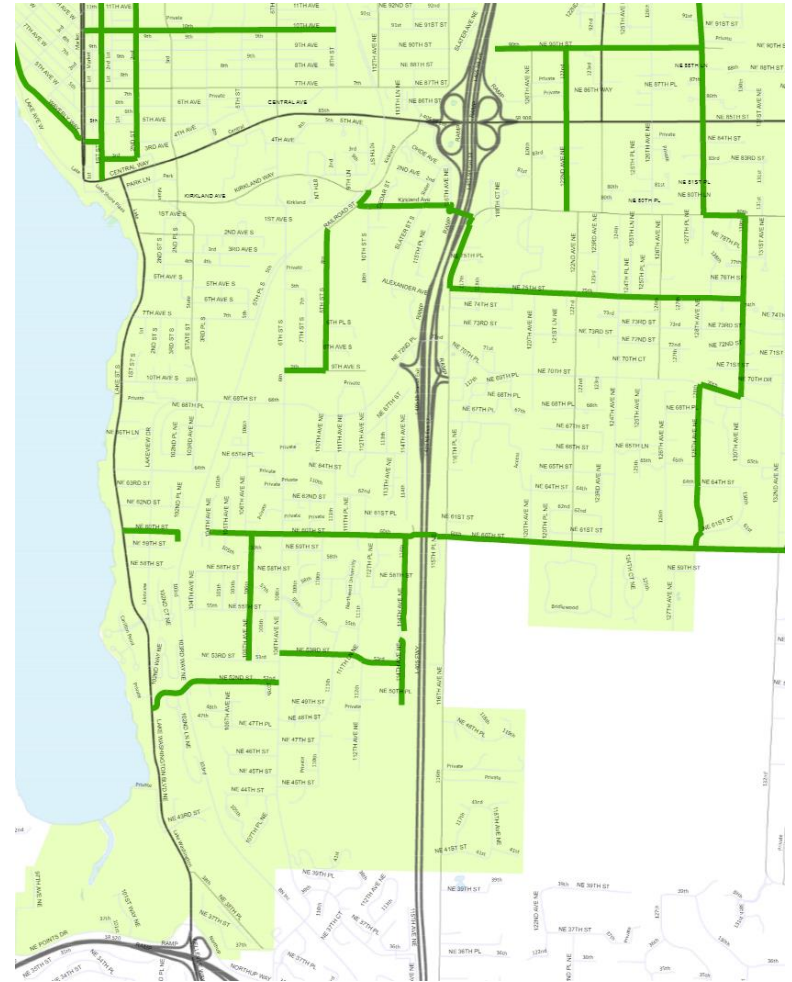
- Provides all ages and all ability network
- Includes traffic calming on neighborhood street
- Established neighborhood greenway group with unofficial network map
- Local access routes to CKC

Constraints:

- City has limited experience with neighborhood greenways

Example:

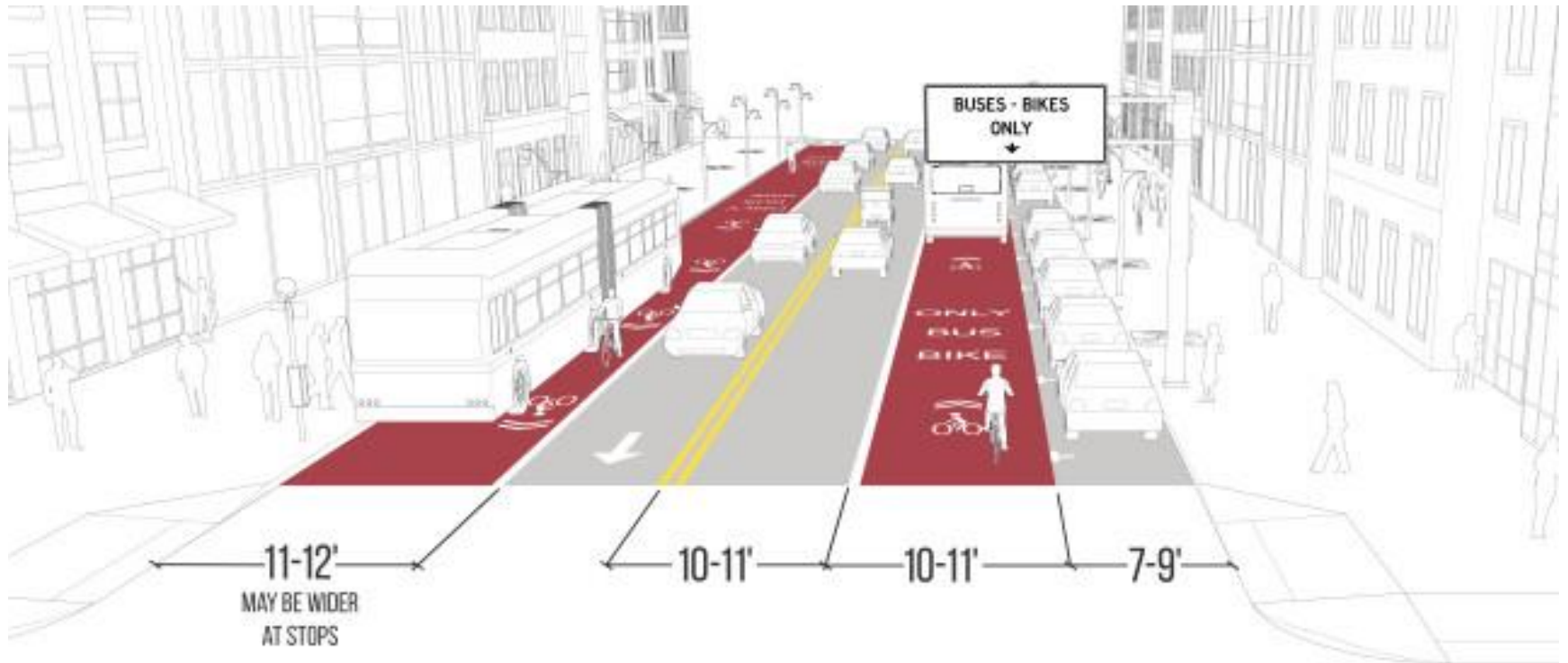
- NE 60th street
- 113th Place NE
- NE 53rd/52nd Street
- 8th St S/9th Ave S



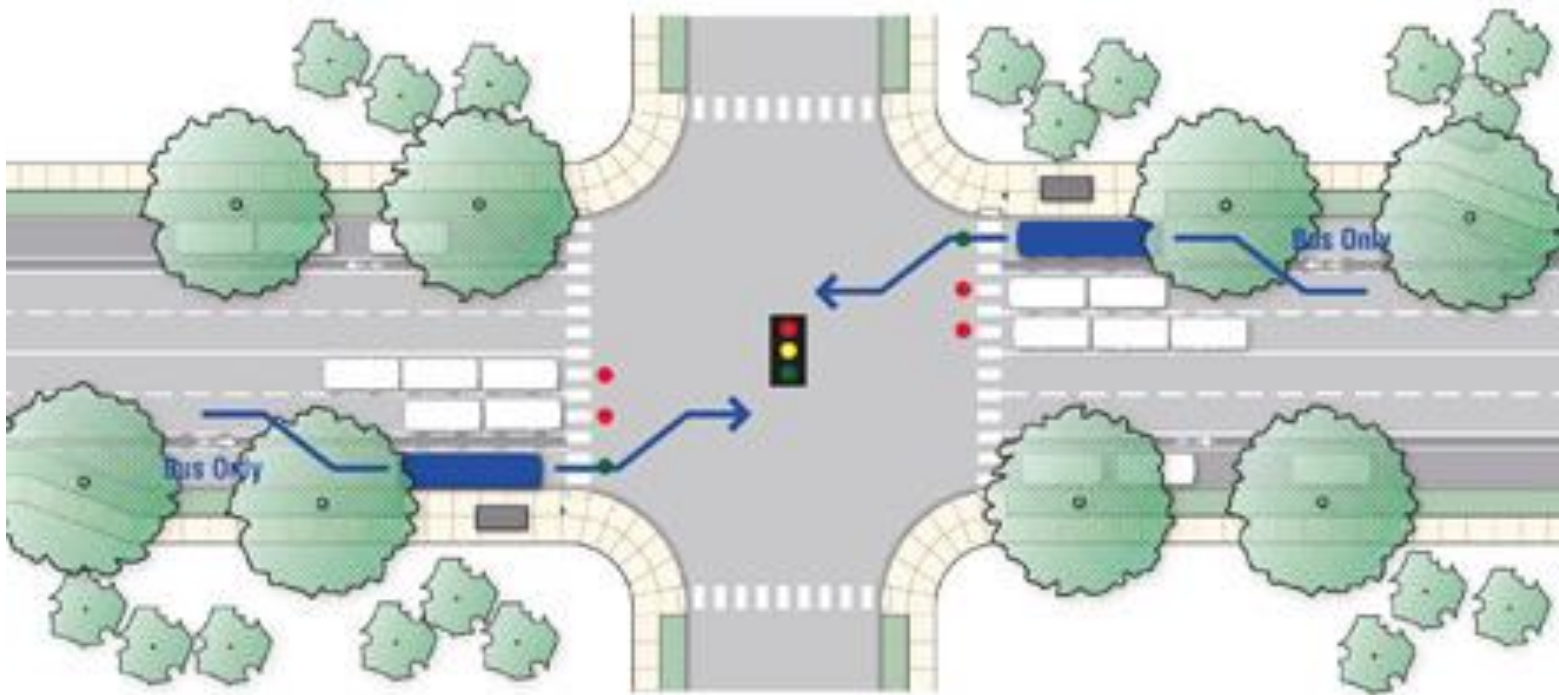
Transit

- Bus Lane/queue jump
- Transit Signal Priority
- Expanded P&R Capacity
- RapidRide enhancements
- Additional transit service

Bus Lane



Transit Queue Jump



Bus Lane/queue jump

Opportunities:

- Reduce transit delays
- Increase person throughput

Constraints:

- Physical constraints within right-of-way especially at intersections

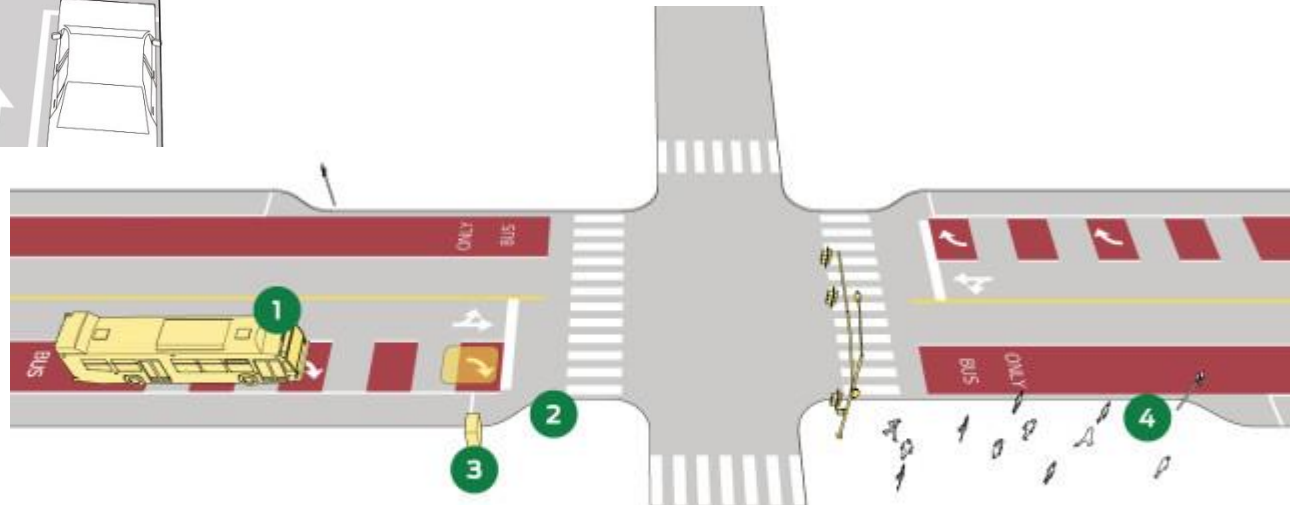
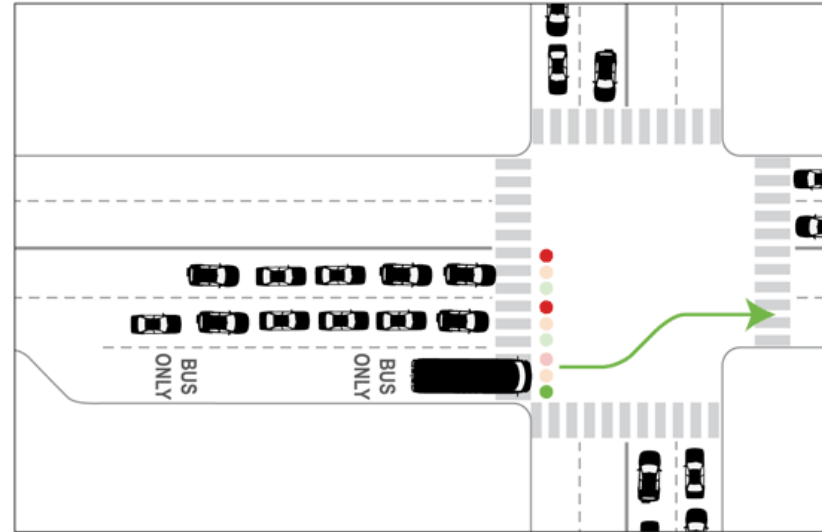
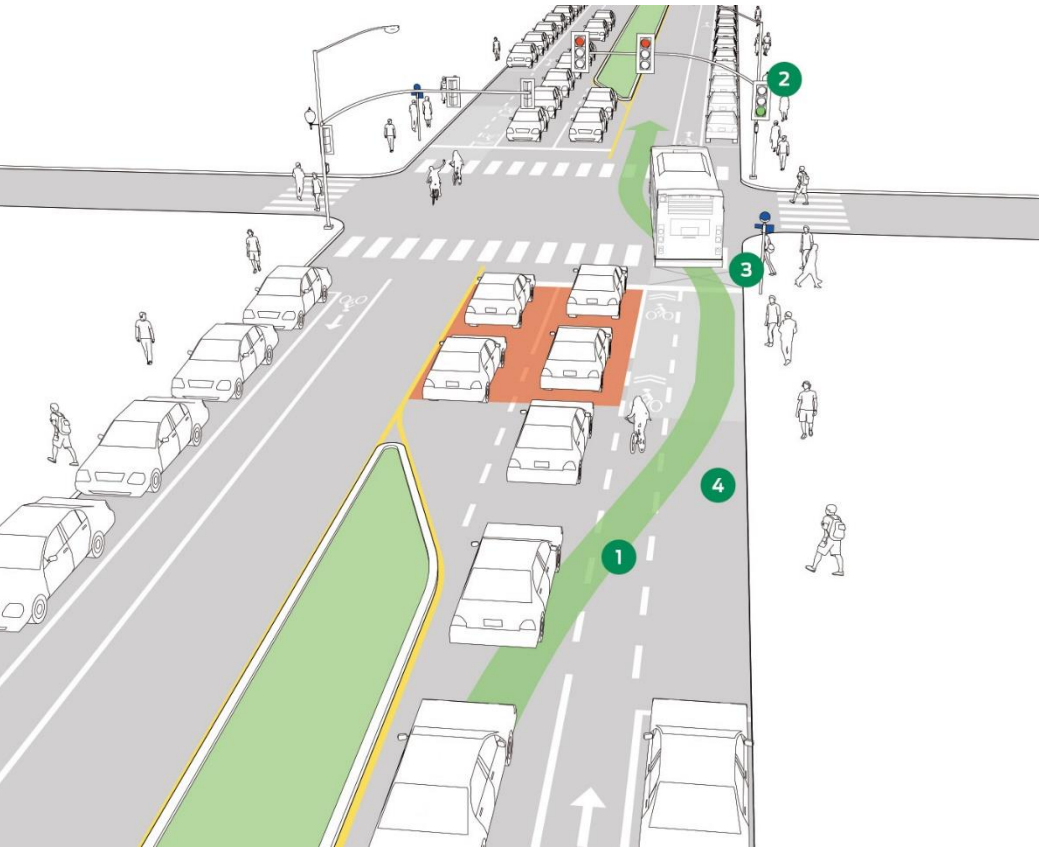
Sample:

- NE Pacific St/Montlake Blvd NE in Seattle

Example:

- NB at 108th Ave NE and NE 68th Street (extending south)
- NB at 6th Street and Kirkland Way (extending south)
- WB at NE 68th Street and 108th Ave (extending east)
- EB at Kirkland Way and 6th Street (extending west)

TSP Treatments



TSP Treatments

Opportunities:

- Reduce transit delays associated with signals

Constraints:

- Requires technology investments to facilitate

Sample:

- Throughout Seattle and Bellevue

Example:

- 108th Ave NE and NE 38th Pl
- 108th Ave NE and NE 37th Ct
- NE 38th Pl and 107th Ln NE
- Northup Way and 108th Ave NE
- Kirkland Way and 6th St (Future)
- Kirkland Ave and 3rd St

P&R Enhancements

Opportunities:

- More efficiently use existing P&Rs
- Alternative P&R models like leased lots
- Metro currently exploring role of P&Rs in future

Constraints:

- Requires financial investments

Sample:

- Holy Spirit Lutheran Church

Example:

- Leased lots program
- Carpool permit parking
- Increase commuter service to low-use lots

RapidRide Enhancements

Opportunities:

- Improves transit access, quality and capacity to corridor
- Frequent, fast and reliable transit service
- Aligns with King County Long-Range Plan
- Includes off-board fare payment, all-door boarding, real-time information, large stations with lighting and other amenities

Constraints:

- Implemented by Metro, funding yet to be identified

Example:

- Route 1027 (Totem Lake, Downtown Kirkland, Bellevue, Eastgate/BC)

Vehicles

- Widen Roadways
- Additional streets/circulation network
- Access management
- Bus Pullouts
- Intersection capacity enhancements
- On-Street Parking

Widen Roadways

Opportunities:

- Could reduce delays

Constraints:

- Property impacts/cost
- Capacity limits (downtown Kirkland, signals)
- Could increase traffic volumes

Example:

- I-405 Auxiliary lane
- Widen 108th/6th street

Additional street/circulation network

Opportunities:

- Improve local access/circulation
- Improve traffic operations and safety

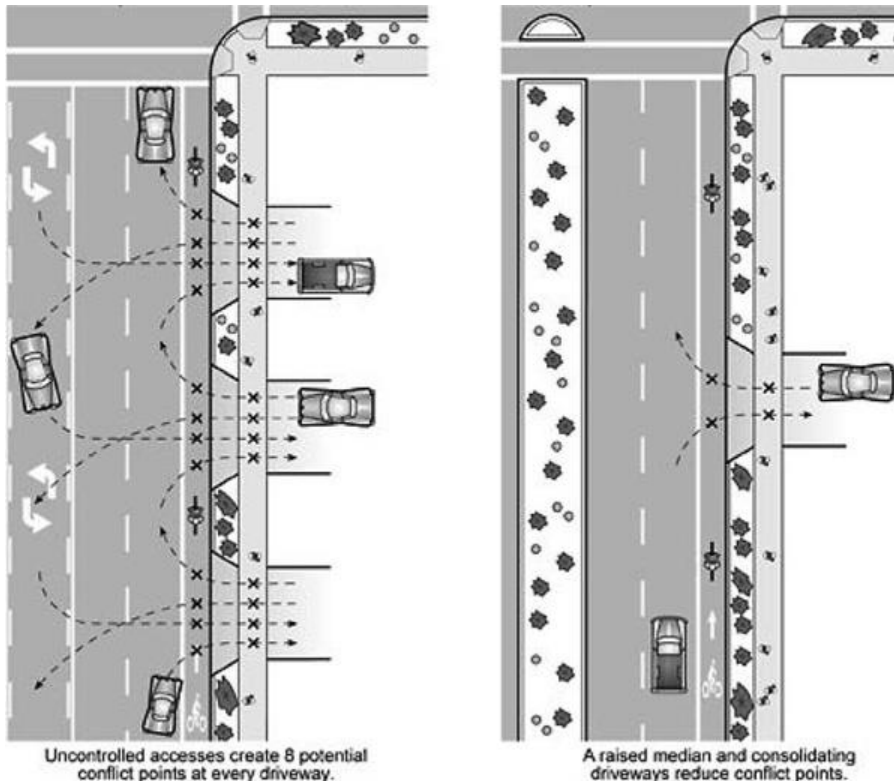
Constraints:

- include new road and intersection construction

Example:

- Study area

Access Management



Opportunities:

- Reduce conflicts and improving traffic safety

Constraints:

- Property development patterns

- Managed Driveway, Intersection and spacing
- Median treatments
- Example
 - NE 68th Street
 - 6th/108th Ave

Access Management

Figure 2: Typical Access Scenario at the Intersection of Two Public Roadways

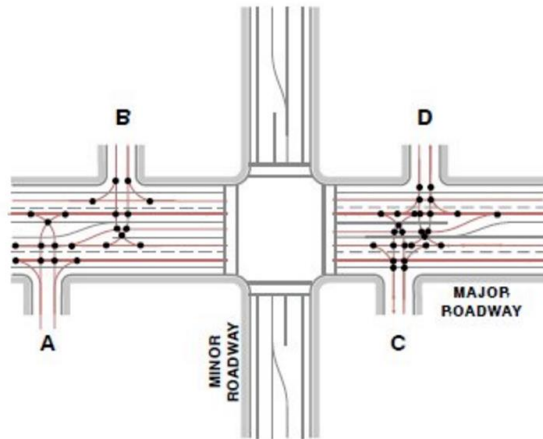
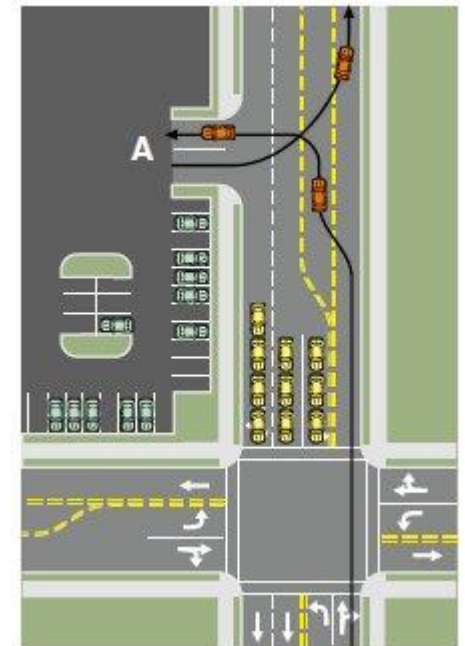
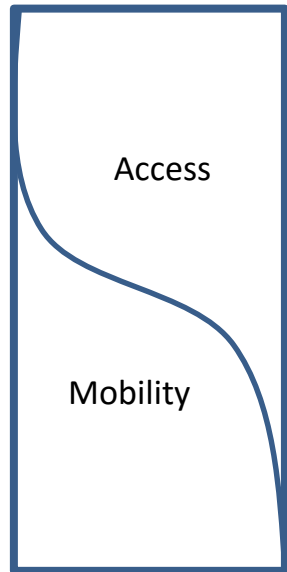
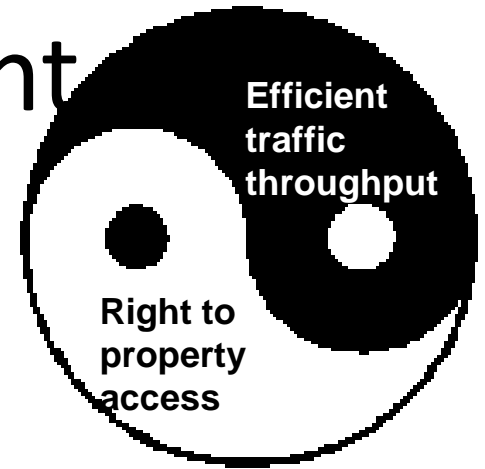
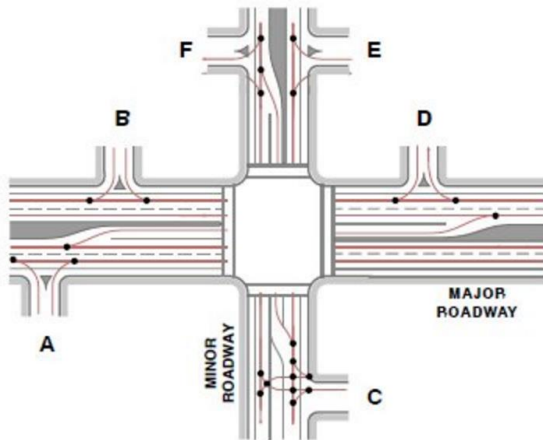


Figure 3: Desirable Access Scenario at the Intersection of Two Public Roadways



Bus Pullouts Stop Relocation

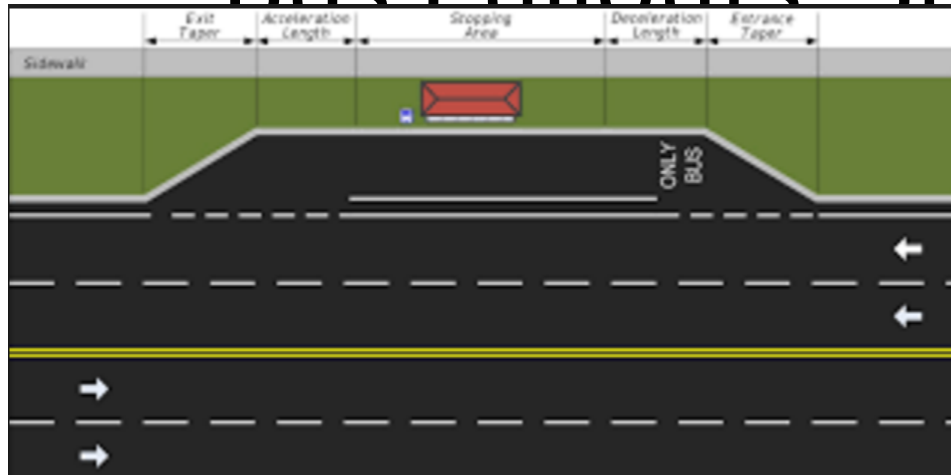
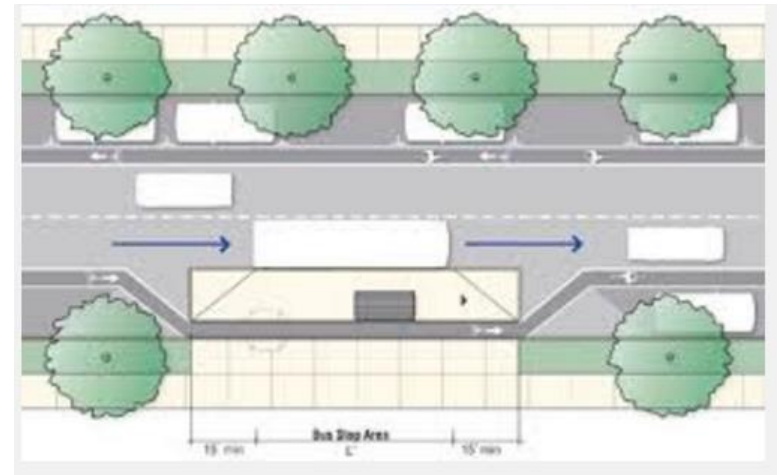


Figure 6-1: Potential Bus Pullout Concept



- Opportunities:
- Constraints:

Bus Pullouts, Stop Relocation

Opportunities:

- Reduce delays associated with buses stopping along 108th Ave

Constraints:

- Require right-of-way widening
- Reduces transit speed and reliability

Example:

- Google stop
- Stop east of 108th Ave NE/NE 68th Street

Intersection capacity enhancements

Opportunities:

- Maximize capacity of roadway without large scale widening
- Address choke points

Constraints:

- Most efficient changes have already been made
- Physical limit of intersection vehicle capacity

Example:

- NB to WB and EB to SB turn lanes at 6th St and Kirkland Way

On-Street Parking

Opportunities:

- Calms traffic and provides physical buffer for sidewalk
- Provides easily visible parking for business
- Signals business/historical areas

Constraints:

- Street right-of-way width

Example:

- NE 68th Street

Development Strategies

- On street parking
- Trail Oriented Development
- Parking circulation oriented to street circulation
- Intersection/Driveway spacing & Access Management

Long Term Strategy

- Move CKC toward Master Plan and Mobility
 - Transit Intersections
 - Access